

THE AUTOMOBILE

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AUTOMOBILE EXHIBITS AT THE WORLD'S FAIR.

M EASURED by the possibilities the automobile exhibit at the Louisiana Purchase Exposition in St. Louis is not a success. Judged by its own merits it cannot be called a failure. The automobile and wireless telegraphy constitute the real novelties in invention that have become part of everyday life since the great World's Fair at Chicago, and the opportunity to thoroughly exploit the former at St. Louis has been utterly lost by the exposition management. Not lost so much as unrecognized, as is manifest not only in the housing of the American exhibit in par-

ticular but in the attitude of those in immediate authority toward automobiles in general.

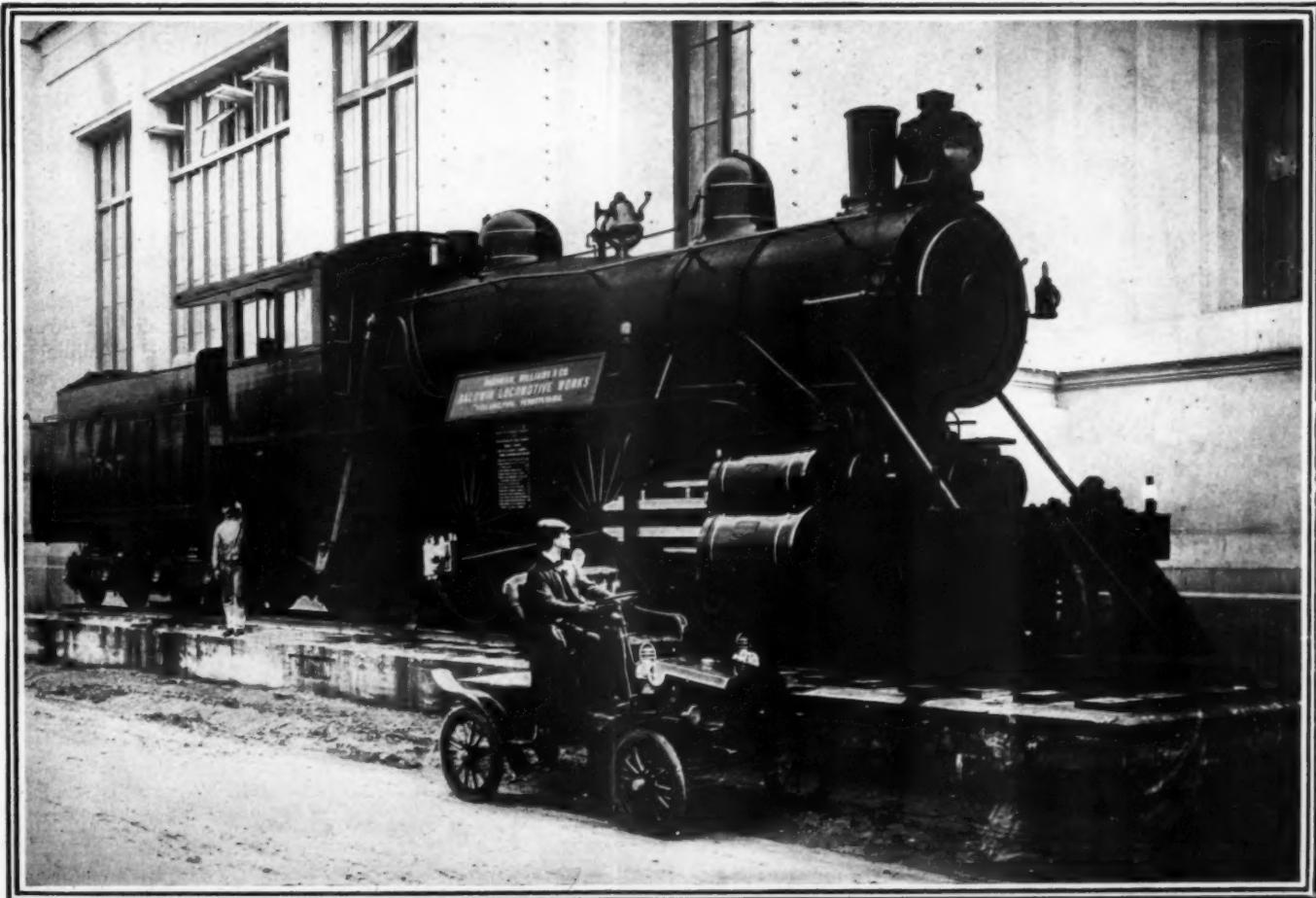
In the great Transportation building in the Fair the American automobile exhibit occupies more than 50,000 square feet of floor filled with a good representation of the cars manufactured here, but all screened off so effectively from the main aisles that a comparatively small percentage of those entering the building ever find their way to the newest thing in locomotion.

In another part of the building, open and unscreened, the French exhibit compels at-

tention, and, though smaller in extent, is doubtless viewed by thousands who do not even know that there are American cars under the same roof.

Railroads and railroading have the place of honor, and the automobile is apparently an afterthought.

In the south aisle of the Transportation building the American automobile exhibit occupies a space about 500 feet long and 110 feet wide, the sides of which are formed by the south wall of the building and a 12-foot screen which, except for an opening in the middle and passageways at the ends,



TWO STEAMERS AT THE WORLD'S FAIR—BALDWIN COMPOUND LOCOMOTIVE WITH SPEED RECORD OF 90 MILES AN HOUR, OWNED BY C. B. & Q. R. R., AND GROOUT RUNABOUT ALONGSIDE.

runs the entire length of the building, practically an unbroken obstruction. North of this partition wall, which is photographically reproduced on this page, are the main aisles of the building leading to the great entrances at the ends. Through these entrances most of the visitors come into the building, passing down through the railroad exhibits without their attention being attracted by the automobile exhibit as they go through. As the intramural railway parallels the south wall of the building, and there is only a dirt roadway between, there is little movement of visitors in or out of the building through the doors on this side. These conditions will be the more intelligible upon an inspection of the plan view on page 321.

In the northwest corner of the Transportation building the French section has a space about 300 feet by 100 feet, with the wall of the building on one side and on the other nothing to obstruct the view from the main aisles except exhibits. As this side of the building faces Machinery Hall—with a delightful boulevard paved and planted between—the side doors here are freely used by visitors. In every important respect the French exhibit is more advantageously located than the American.

There are many and striking differences between the French and American sections, both as to the cars themselves and their surroundings. As to the former, the American exhibit is inclusive, the French exclusive. The differences in the surroundings are even more marked. Long experience in international exhibitions combined with national taste and artistic perception have given the French a marvellous degree of skill in making a beautiful display of their wares. A first impression of each of the sections is given in the photograph reproduced on page 307. In the American section the visitor looking down the long vista of poles thinks for the moment that he is entering a lumber exhibit, until his eye, wandering upward, catches sight of the pawnbroker's sign on top of each group. To explain the mystery he glances at the glass plate (see page 322) in front of a booth and reads the unintelligible (to him) notice "Nat'l. Assn. Auto. Mfrs."

The deserted appearance of the aisles and stands might confirm the impression pro-

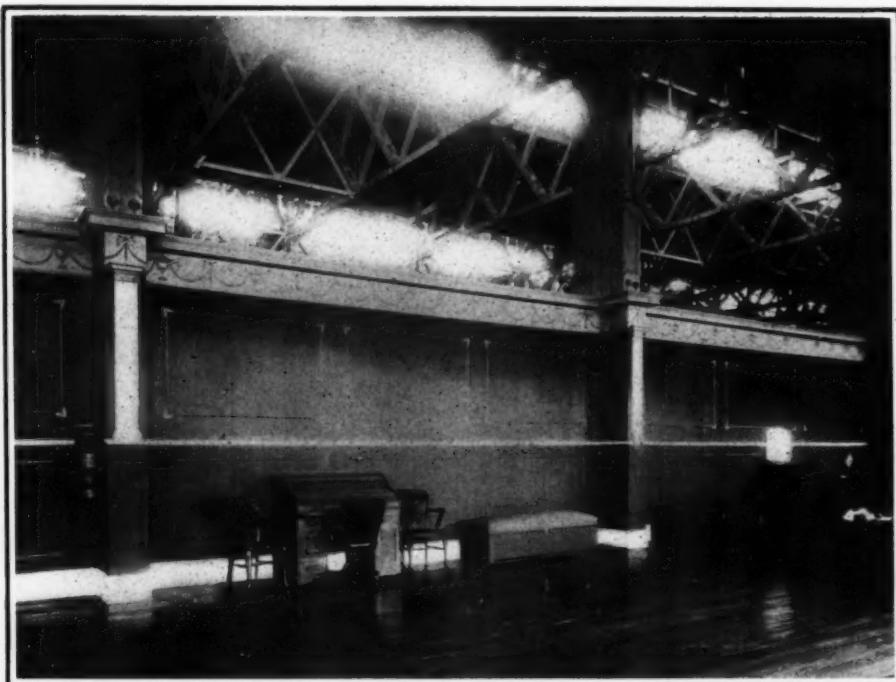
duced by the gilt balls overhead, for the exhibit more resembles a place of storage than a bustling, active fair. This sign of the N. A. A. M., which is sandwiched in between every pair of makers' signs, has been very misleading. Few of the visitors know of the existence or purpose of the organization, and many get the impression that some car that strikes their fancy is built by the maker with the abbreviated name, the real builder not being recognized.

As has been said the American exhibit is inclusive, covering a wide range of vehicles of all sizes and styles. Gasoline, steam and electric cars are well represented by leading makers. While to the initiated there are few novelties in complete vehicles or details of construction, this is an advantage to the interested and unsophisticated visitor, for he can see duplicates of all styles

all the other structures on the grounds, is built of wood. Viewed from the outside it is very attractive and gives promise of artistic beauty within, which gives place to disappointment when the antiquated looking roof beams and rough supporting pillars meet the eye—a striking contrast to the fine geometrical shapes of the steel buildings of the Chicago Fair. In the case of many exhibits, as in the Agricultural Hall for example, this would not seriously matter. For an automobile exhibit, in which artistic form and color play so considerable a part, an artistic setting is a necessity. To overcome the bad effect of the interior the American section is draped overhead with colored bunting which serves the purpose very well, though it screens a good deal of light from above.

The overflow from the section along the side of the building is placed in spaces on the transverse aisles at the west end, where a wide door opens southward onto the roadway used by demonstration automobiles.

Early promises that the cars at the Fair would be largely shown in operation have not been fulfilled. For several weeks after the opening of the Fair the demonstration of cars within the grounds was not permitted at all. When permission was finally granted the cars were allowed to use only certain specified roads which lead from the State Buildings entrance in a circuitous route to the Transportation



PHOTOGRAPH OF PARTITION WHICH CUTS OFF THE AMERICAN AUTOMOBILE EXHIBIT FROM THE MAIN BODY OF THE TRANSPORTATION BUILDING AT THE WORLD'S FAIR IN SAINT LOUIS.

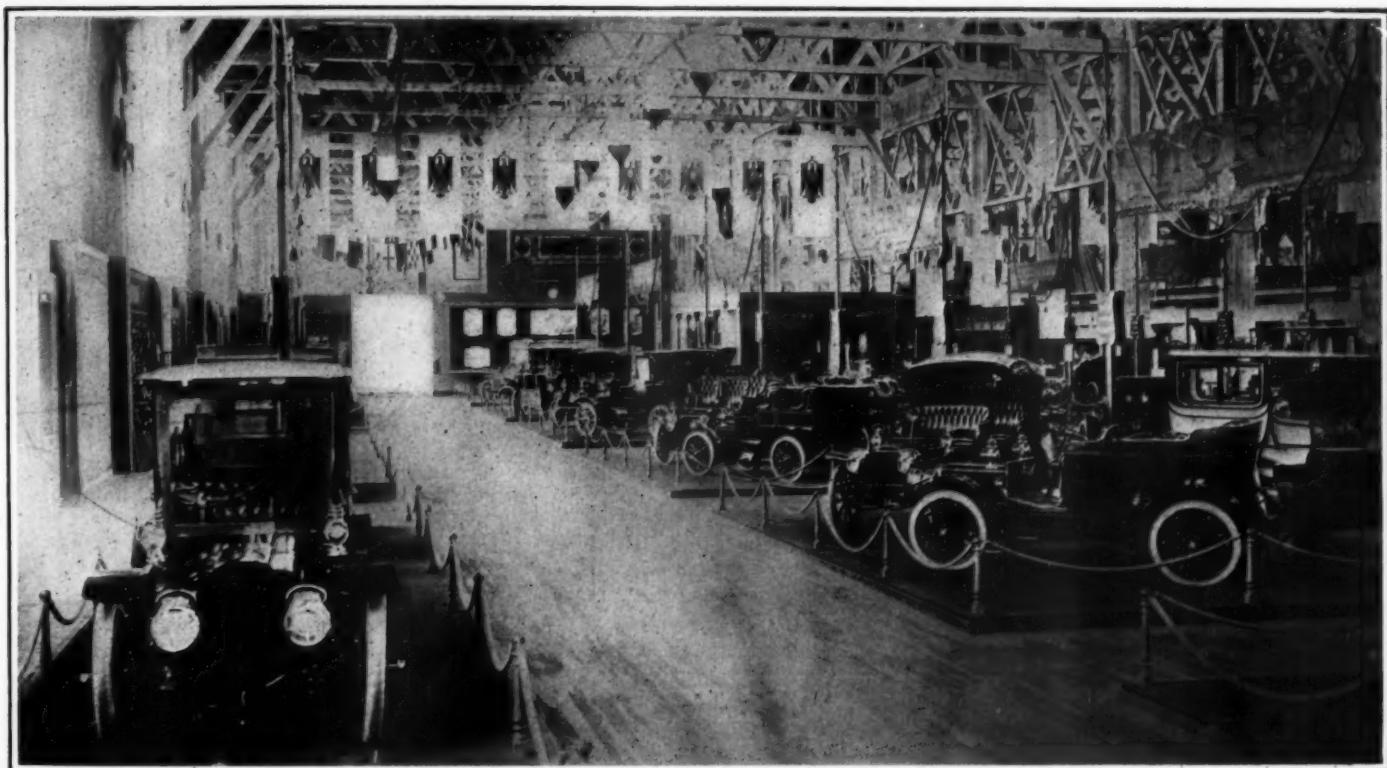
of cars now in use and for sale on the market. Freaks and untried inventions do not distract his attention from the serviceable machines of to-day.

In the American section there are three platforms running lengthwise of the building, one on each side, and a wider one in the center with two aisles for the visitors, who are also free to move about among the exhibits. Along the outside edges of these platforms the wooden posts already referred to are placed at intervals and there are no dividing ropes or partitions between the several stands on each platform. As a consequence the inexpert visitor never knows when he passes from one exhibit to another for few of the cars are adequately labeled and many of the exhibitors have no representatives on the floor.

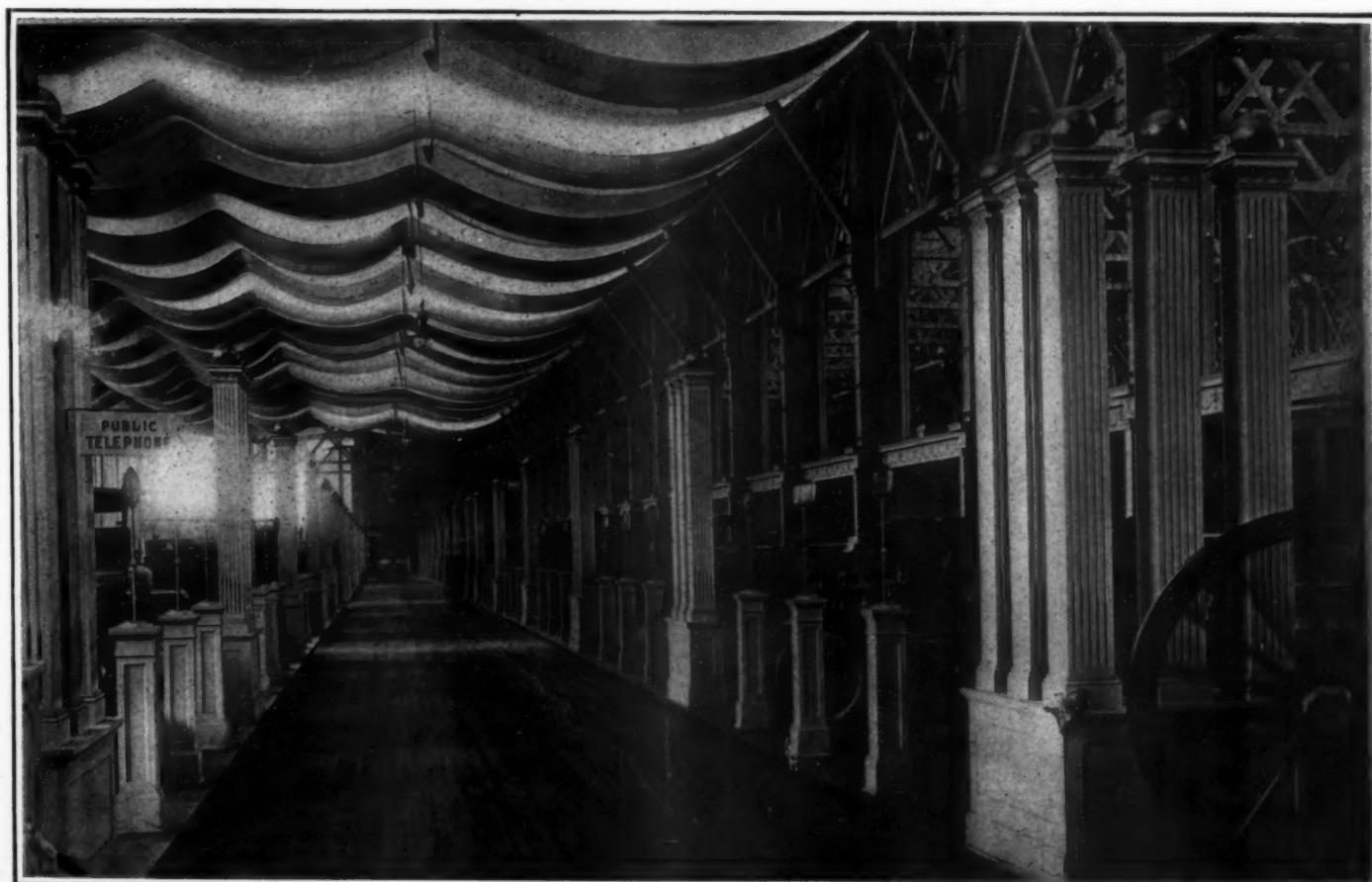
The Transportation building, like nearly

building. Much of this route is over soft dirt roads that on wet days are almost impassable, and there are some very steep pitches along the way. For this reason little use is made of demonstration cars and also because the automobile representatives fear they will be subject to many petty annoyances on the part of the armed guards and other World's Fair employees.

In the American section the display of sundries, accessories and component parts is not nearly as representative as that of complete machines. A few stands of makers of accessories are lined along the south wall of the building, and there are also more inclusive exhibits by dealers, but the showing is not comprehensive. There are no tires displayed in the American section, those exhibited being placed among other rubber goods in one of the large buildings



PHOTOGRAPH TAKEN IN ONE OF THE AISLES OF THE FRENCH AUTOMOBILE SECTION SHOWING PORTION OF THAT EXHIBIT—NOTE THE INDIVIDUAL STANDS AND THE DECORATIONS WHICH DO NOT OBSTRUCT THE VIEW OF THE MACHINES.



PHOTOGRAPH IN ONE OF THE AISLES AT THE BEGINNING OF THE AMERICAN AUTOMOBILE SECTION IN THE TRANSPORTATION BUILDING—
NOTE THE PROMINENCE OF THE PILLARS AND POSTS WHICH OBSTRUCT THE VIEW OF THE CARS AND
DISTRACT THE ATTENTION FROM THE VARIOUS EXHIBITS.

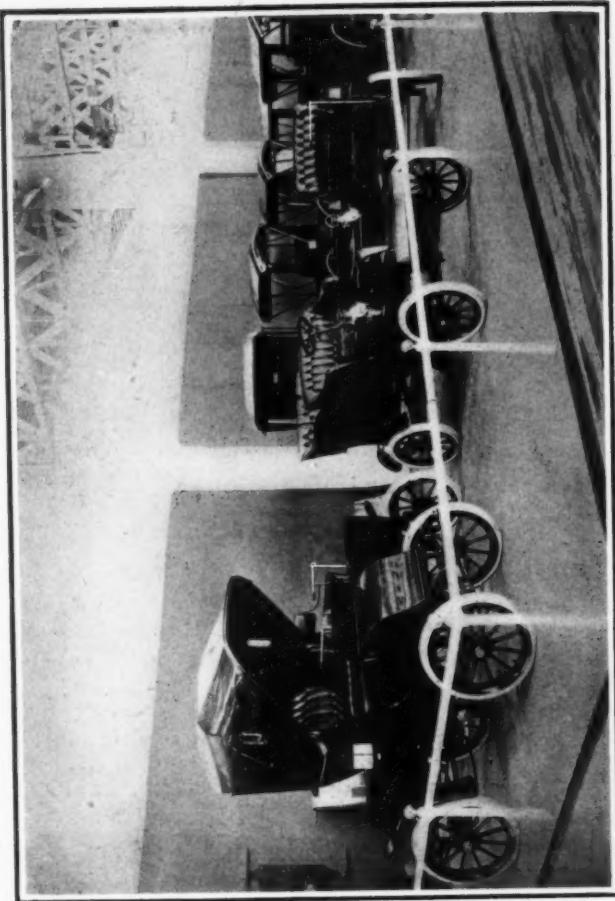
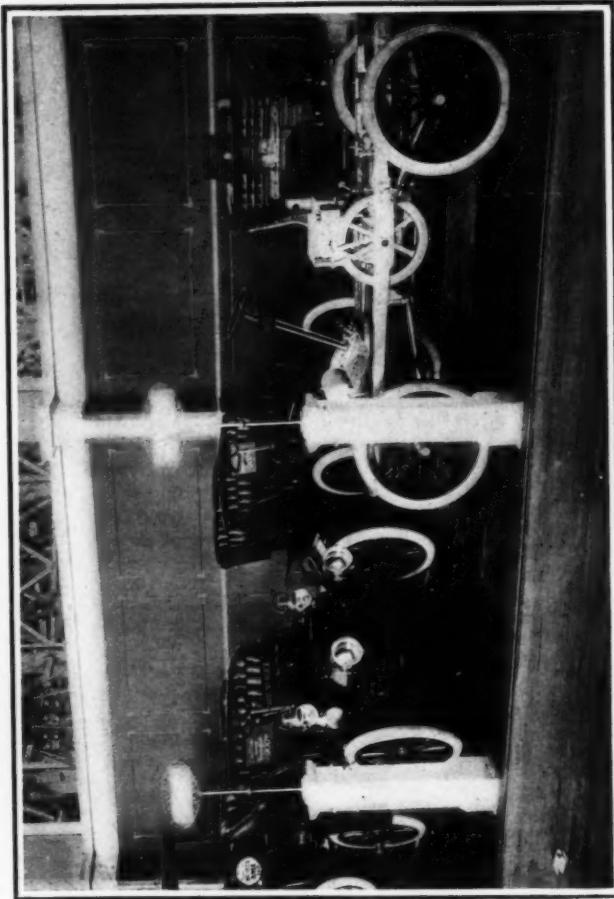
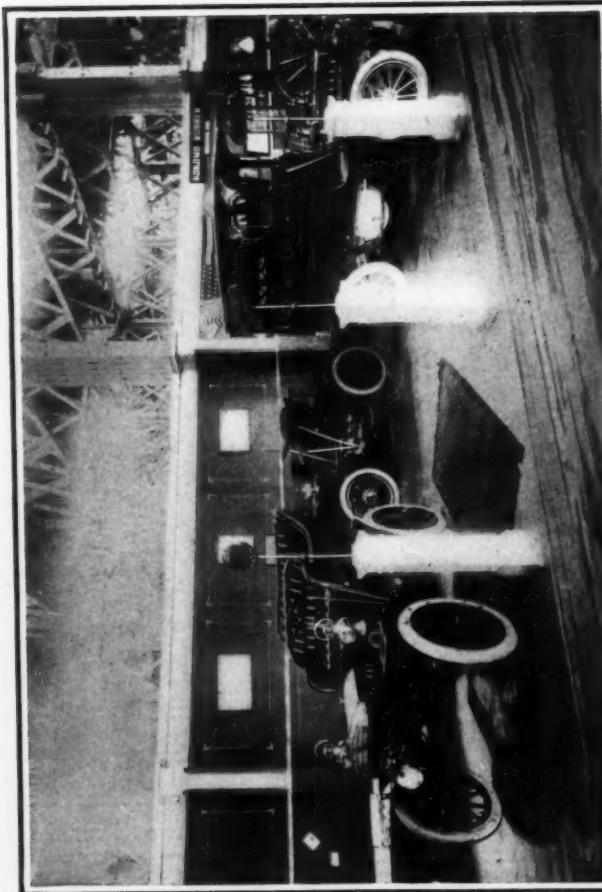


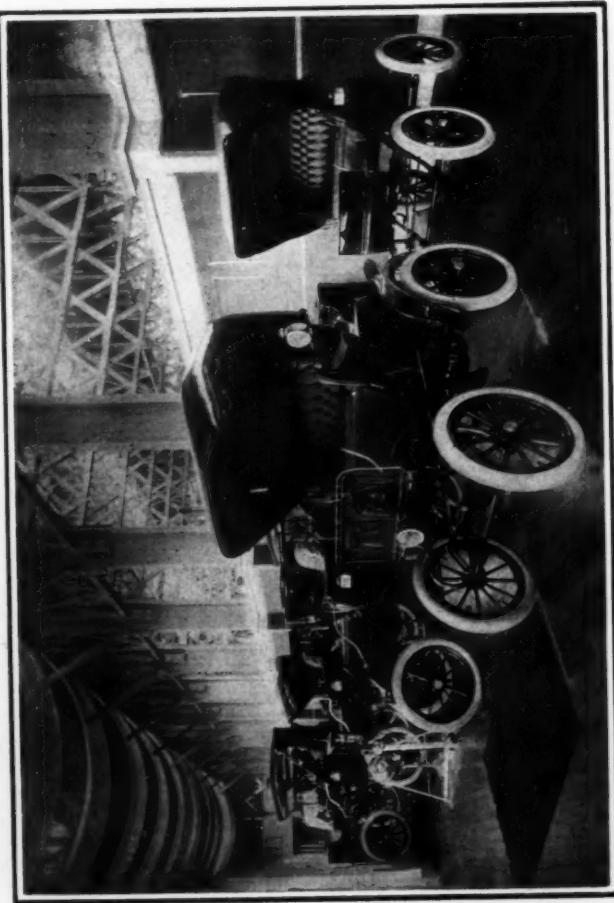
Exhibit of the Studebaker Automobile Co., Showing Electric and Gasoline Cars.



Complete Cars and Chassis Shown by the Cadillac Automobile Co.

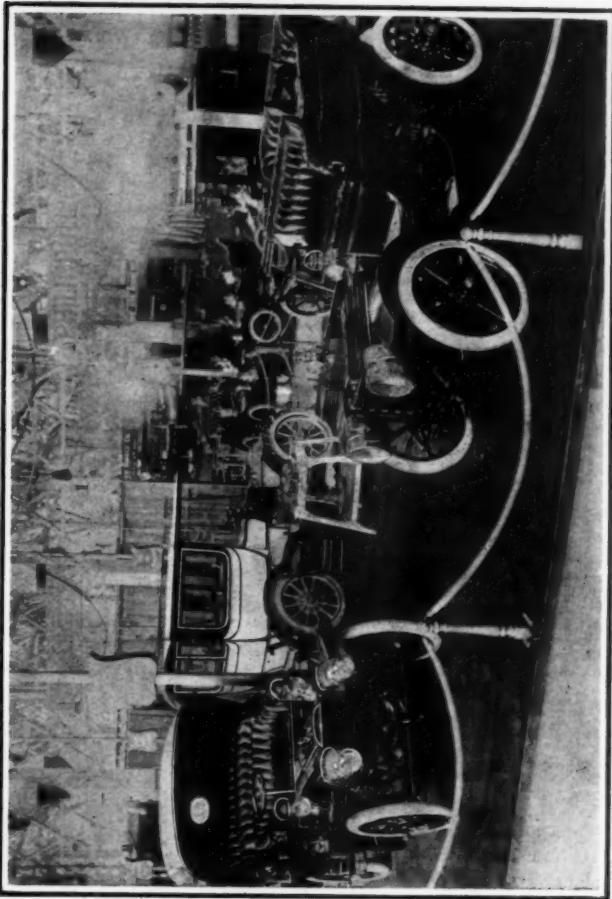


Stand of the St. Louis Motor Carriage Co., Showing Pleasure and Commercial Vehicles.

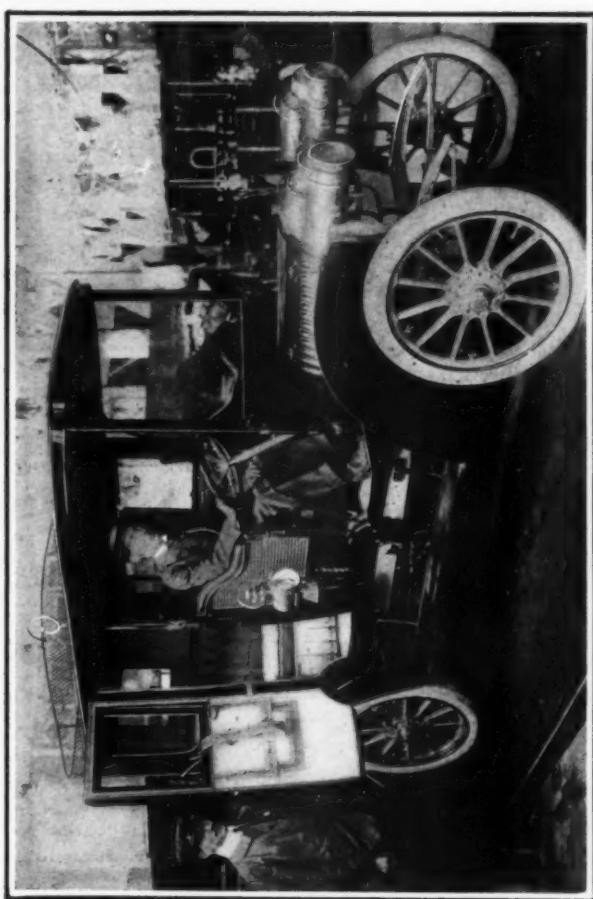


Electric Carriages Exhibited by the National Motor Vehicle Co.

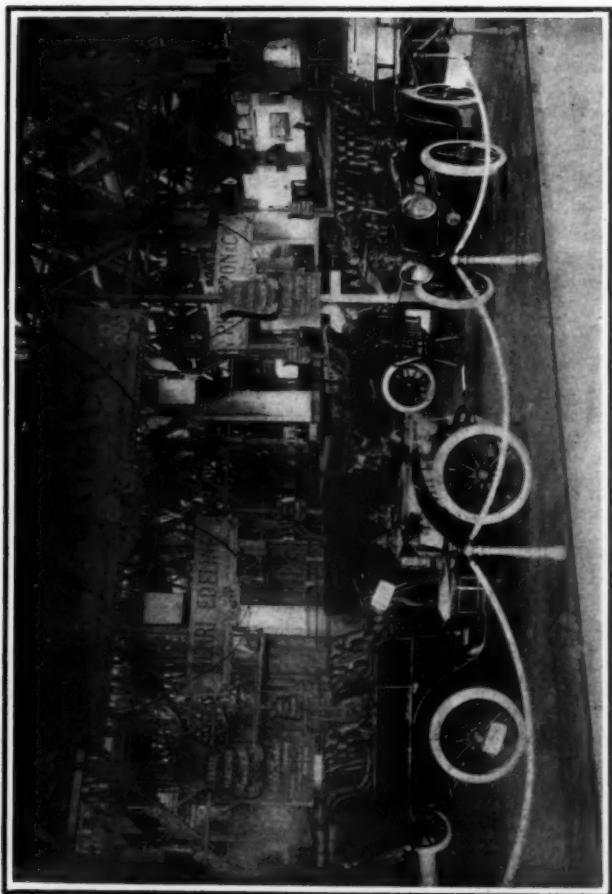
PHOTOGRAPHS OF TYPICAL STANDS OF ELECTRIC AND GASOLINE MACHINES IN THE AMERICAN SECTION OF THE TRANSPORTATION EXHIBIT AT THE LOUISIANA PURCHASE EXPOSITION.



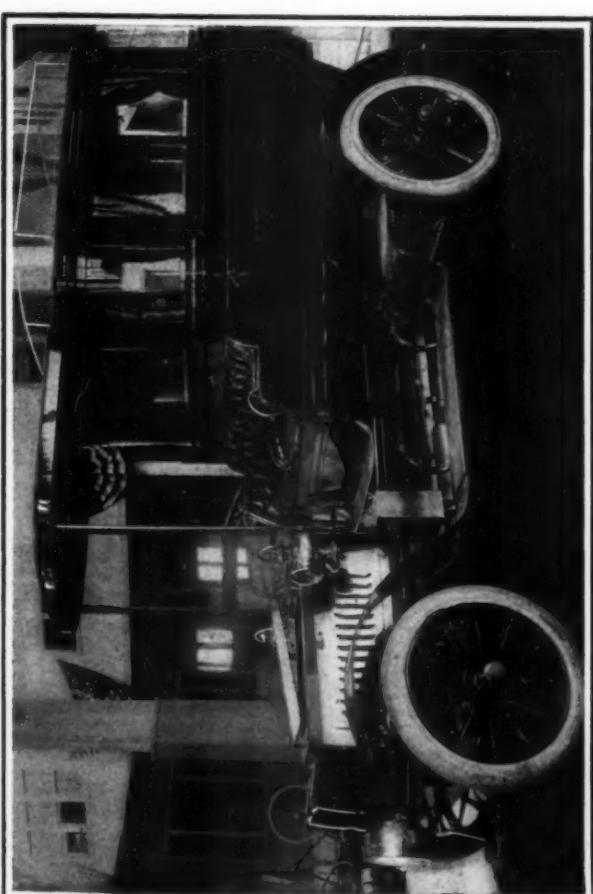
General View of the Mors Exhibit, Showing Enclosed, Semi-Enclosed and Open Cars.



Exquisitely Finished Side-Entrance Enclosed Hotchkiss Car.



Darracq Stand, Showing Complete Cars with Tonneau and Side Entrance Bodies.



Magnificent Touring Car de Luxe Exhibited in the de Dietrich Stand.

PHOTOGRAPHS OF SOME OF THE NOTABLE EXHIBITS IN THE FRENCH SECTION AT THE LOUISIANA PURCHASE EXPOSITION AT SAINT LOUIS—COMPLETE STANDS AND INDIVIDUAL CARS.



EXHIBIT OF LAMPS MANUFACTURED BY GRAY & DAVIS IN THE AMERICAN AUTOMOBILE SECTION AT THE WORLD'S FAIR.

containing industrial exhibits. In both the French and German automobile sections there are extensive and representative exhibits of tires that add considerably to the interest of the show for automobilists.

Approaching the French section the visitor gets an immediate impression that here is a beautiful display of automobiles. There are no pillars and posts as in the American section to obstruct the view and confuse the visitor, but a broad stretch of floor space on which individual stands the cars of each exhibitor are artistically disposed. The wide aisles between the stands permit a great number of visitors to walk about freely and obtain close views of all the exhibits. Each stand is on a raised platform covered with cerise red carpet, giving it a warm, furnished appearance. Tall, slender masts support silk velvet signs overhead, that bear the name of the exhibitor in gold letters. Silk cords and tassels help the artistic effect of these signs, which are uniform in color and manner of inscription. The edges of the stands are railed off with short posts and heavy twisted cord strung between. These posts fit snugly in mortices in the floor and can be easily pulled up to permit of the movement of a car on or off a stand. In the American section the large posts are nailed down, and as they are not spaced widely enough apart to allow the passage of a large car between they have frequently to be torn up.

The French exhibit has been arranged with great care, so that it produces an immediate and favorable impression on the visitor. Instead of appearing as a miscellaneous collection of vehicles it is a composition in which all the parts are arranged to produce a harmonious picture. Most of the cars shown are of the luxurious sort, and there are some extremely beautiful examples of coach work and upholstery on view. The color schemes of some of the cars are bold, but produce strikingly pleasing effects. In one of the Kellner bodies fitted to a Hotchkiss chassis there are blended claret, black, red and yellow, the latter painted in clever imitation of cane in the

panels. Many of the cars seem to have been specially well finished for show purposes, and the exhibits of component parts and accessories are manifestly show products, of beautiful design and workmanship.

Nearly all of the stands have permanent attendants, some of whom can speak several languages, and M. Faive, representative of the French manufacturers' association, has an office close by and is always in attendance ready to take unlimited pains with visitors during the Exposition hours. French attendants dressed in neat uniforms also patrol the aisles ready to give information to visitors, or perform any needed service for the exhibitors.

American manufacturers would be well repaid for a visit to the Fair if for no other purpose than to personally examine the French methods employed. In artistic arrangement and convenience for visitors, in its perfect organization and in the knowledge of exposition needs displayed by the personnel it far surpasses not only the American section at the Fair but anything in the way of an automobile show ever held in this country. Personal interests have been subordinated to the general good of the French industry. As an example several of the exhibitors of complete parts have given imperative instructions to the management not to take any orders, the exhibits being made so that the French section might be representative of the industry.

Among the automobile exhibitors, in the American section especially, there is not much enthusiasm left. The attendance has not been what was expected, either in quality or quantity. Except for a few weeks earlier in the season the visitors to the automobile section have been what one exhibitor termed a "lunch basket crowd." Repeated explanations of the construction of a gasoline car have time and again resulted in the final query of a visitor, pointing to the ignition wiring: "So this is an electric car." Leaky roofs, which on wet days threaten to spoil valuable exhibits, and an uninterested if not antagonistic set of Fair officials with whom the exhibitors come in contact all

add to the depressing influences, and the initiated visitor never feels glad except when he leaves the gloomy automobile exhibit and walks out into the sunshine and beautiful scenes in the grounds.

In both the French and American sections there is a noticeable absence of attractive literature for distribution. This seems to be a mistaken policy, for while temporary curiosity might cause many visitors to take away catalogues, yet all would not be wasted, and the educational possibilities of such an exposition are tremendous. The merely curious of to-day may be the eager customers of to-morrow.

Without considering here what might have been done to promote a correct and wider knowledge of what the automobile really is at this World's Fair, the exhibits of themselves are adequate in number and representative in quality and kind. In the domestic section the visitor sees cars of moderate price, built especially to meet the conditions of American travel. Cars that crossed the continent and cars that toured from New York to St. Louis are on view just as they finished their trips alongside of the same styles of machines as they came out of the shops. The visitor can make his own comparisons. In the foreign section the luxurious side of automobiling is presented in many exhibits.

Thus the most economical and the most extravagant are on view with all the intermediate grades, and there is a splendid opportunity for the intending buyer to study styles and satisfy his particular tastes. And when to the display of automobiles is added the enormous number of other attractions, serious and amusing, that the 1,200 acres of the Fair contains, the question of a personal visit permits of only one reply: "Yes, go to the Fair."

Those who are within touring distance of St. Louis will doubtless prefer to make a visit an excuse for an outing. There are fine accommodations for man and machine in St. Louis, and if the automobilist keeps off those streets that trolley companies practically own he will greatly enjoy his visit.

American Automobile Section.

THE American automobile exhibits at the Fair disclose very little not already made familiar by the shows last winter and spring and by the technical press. Many things, such as exhibition chassis and parts, have already done duty at New York, Chicago and elsewhere, though, of course, they are new to many of the visitors at St. Louis. Evidently there are not now many manufacturers who make changes in model in the midst of the selling season; but if the exhibits show few novelties, they are complete and instructive. Nearly every American make of importance is represented, and several exhibits of parts, accessories and clothing are also shown.

After the termination of the St. Louis tour a number of makers put their tour entries on exhibition for a longer or shorter period. Mr. Glidden's Napier was for several days ensconced among the railway exhibits at the west end of the Transporta-

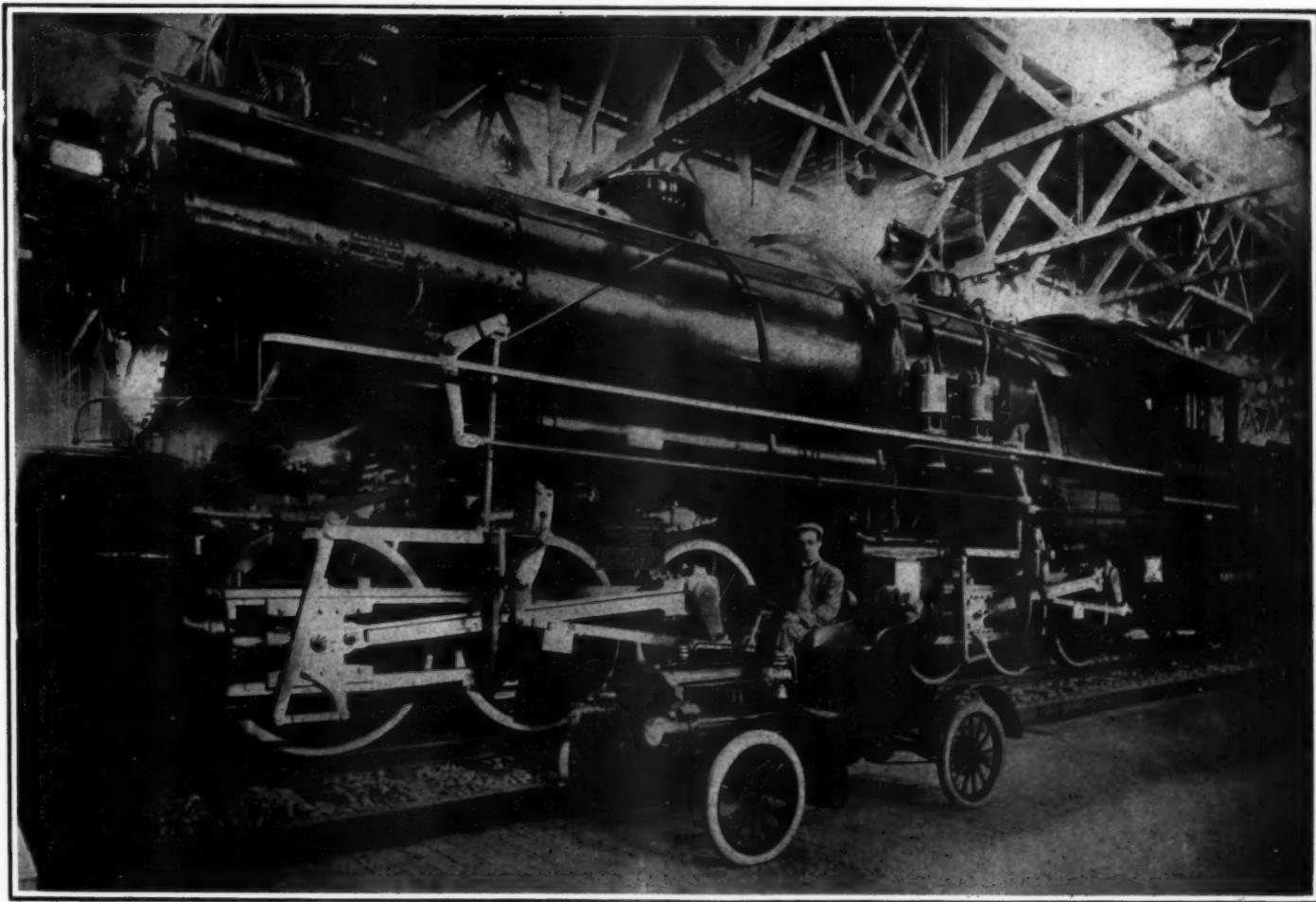
tion building, and the Pope-Toledo and Pope-Hartford were among the cars added to the regular exhibits.

One brand-new model, the 1905 White steamer, was put in place a few days after the end of the tour, and naturally attracted much interest.

To the technically inclined the French automobile section was much more interesting than the American. This was due, of course, both to the high grade of engineering skill displayed in these machines and to the fact that several makes shown were entirely new to the American public. Evidently the French makers had done their best to make a good impression, and if they did not wholly succeed it was by reason of no fault of their own. The fact is that few buyers in the West are educated up to the refinements of French automobile engineering, and the larger number of the visitors, knowing the imported cars to be as much out of their walk of life as

the German and French art objects in the Varied Industries and Liberal Arts buildings, casually admired—and went their way. From this standpoint the American makers who showed low-priced runabout and light road models displayed sound business judgment. The kind of public interest that spelt profits was all captured by them.

The Haynes-Apperson Co. shows, in addition to samples of its present year machines, what is without doubt one of the oldest, if not the oldest, gasoline automobile in this country. It was built by Elwood Haynes in 1893, and has, like the present machine of the company, three forward gear changes. The motor and countershaft, which latter is driven from the motor by separate sprocket chains and individual clutches, are mounted on an underframe connecting the axles. The front axle swivels vertically on a horizontal kingpin, and the compensating gear appears to be a pair of ratchet clutches. The motor is a single cylinder, vertical, two-cycle engine, apparently capable of developing 2 horsepower. The regular exhibit com-



Photographed for *The Automobile*.

By N. Lasarnick, New York.

A CONTRAST IN DIMENSIONS—OLDSMOBILE RUNABOUT ALONGSIDE B. & O. ENGINE "ST. LOUIS," LARGEST LOCOMOTIVE IN THE WORLD.

The locomotive, which was built at Schenectady, N. Y., is an articulated compound with twelve driving wheels and weighs 480,000 pounds ready for the train. (Note the distance from the front of the smoke-box to the rear of the cab.) The Oldsmobile is one of the regular touring cars of 7 horsepower and weighs complete 1,200 pounds. Considering the confined space in which to place the camera, and the poor light, this photograph is remarkable as it is practically free from distortion.

prises two light road cars with folding tops and one tonneau touring car.

The St. Louis Motor Carriage Co. shows three machines, a 9-horsepower runabout, one tonneau touring car, and one delivery wagon, each of 12 horsepower. All three machines have single cylinder engines, but the runabout has only two forward speed changes, while the larger cars have three. In each case the speed change is effected by sliding gears which are mounted in an extension of the crank case, and the final drive is by single chain. The arrangement of the gears and shafts in the 12-horsepower car, which is a little out of the usual order, is as follows: Mounted on the crank-shaft is a disk clutch tightened by a sliding thimble and dogs in the usual manner. The clutch serves to lock a loose gear fast to the crankshaft, and this gear meshes with another loose gear on the sprocket pinion shaft just back of the crankshaft. This gear is made rigid with its shaft by a

this writing put its exhibit in place, and the same is true of the Matheson Motor Car Co., the Eisenhuth Horseless Vehicle Co. and the Consolidated Motor Vehicle Co. Smith & Mabley have several imported machines in the French section, referred to elsewhere, but nothing was to be seen at their space in the American section except four packing cases.

The Pope Motor Car Co. shows two Pope-Hartford runabouts, one being the machine driven by Harold L. Pope in the St. Louis tour; a Pope-Hartford car with tonneau, a Pope-Tribune, and the Pope-Toledo entered by Albert L. Pope in the St. Louis tour. The electric vehicles shown by the same company comprise seven Pope-Waverley models, including runabouts, tonneau and closed vehicles, and a delivery wagon. The larger number of vehicles have the battery divided between two compartments at front and rear, or underslung. Internal expanding hub brakes are

suspension rod hanging from a transverse tube, whose ends are attached to the front ends of the full elliptic rear springs. This tube in turn is hung from a short transverse leaf spring attached to the body. In all the lighter vehicles made by this company the front springs are of peculiar form. They somewhat resemble C-springs, and are pivoted at their rear ends to the main frame, while their backwardly curved front ends are attached by shackles to the front ends of the frame. This gives a very easy movement to the front axle. The seven vehicles shown include chiefly runabout and stanhope models.

Samples are shown also of the Exide, Edison and Western storage batteries, the last-named being made by the National Motor Vehicle Co. in its own factory. The exhibit includes also full-size working models of the controller and of the rear axle with motor attached. Reversal is effected by pressing a button in the end

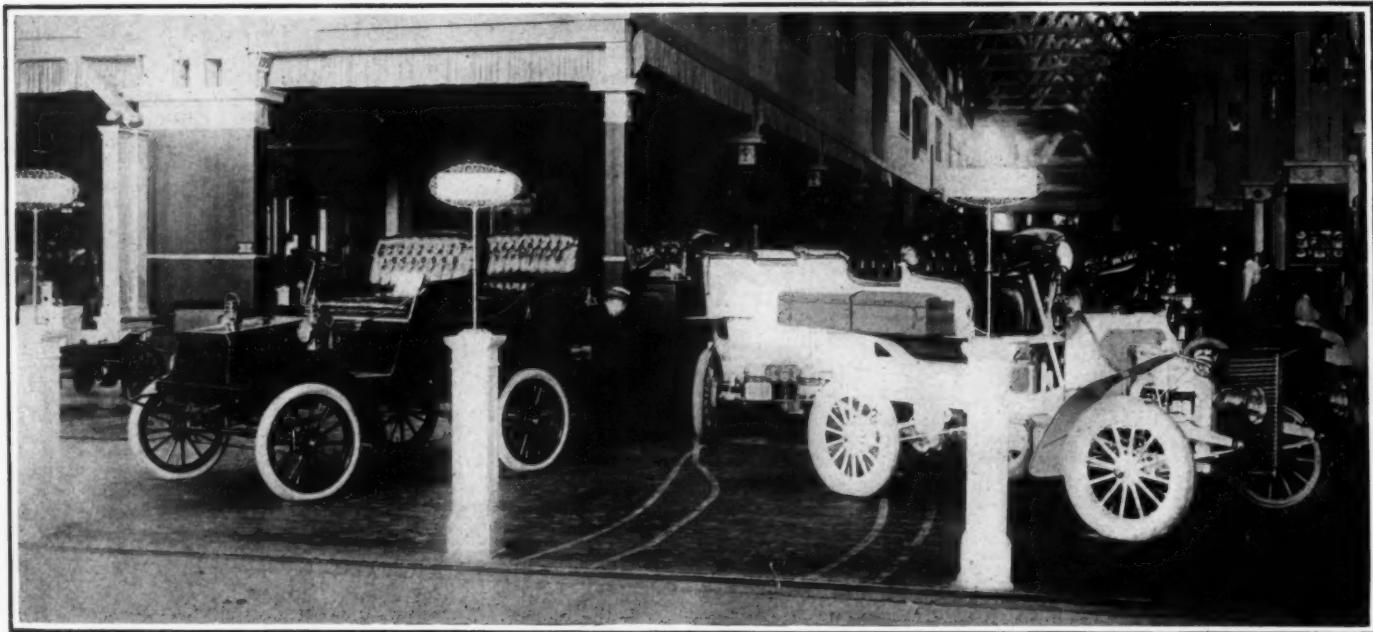


EXHIBIT OF STEAM CARS AT ST. LOUIS IN THE AMERICAN SECTION—WHITE CARS TO RIGHT, GROUT TO LEFT.

claw coupling for the high speed. This second gear is in constant mesh with a third, which is fast to a shaft below. Two other gears of different sizes are also fast to this lower shaft, and one or the other of two corresponding sliding gears on the sprocket pinion shaft may be meshed with them, giving the first and second speeds when the direct drive coupling is released. The reverse is obtained by an intermediate pinion engaged by the first speed sliding gear. The arrangement in the runabout is similar in some respects, but the sprocket pinion is on the lower shaft, not the upper, and a pair of sliding gears on the upper shaft give the lower its first and second speed.

The Royal Motor Car Company shows one of their 35-horsepower Royal tourist cars.

The Peerless Motor Car Co. has not at

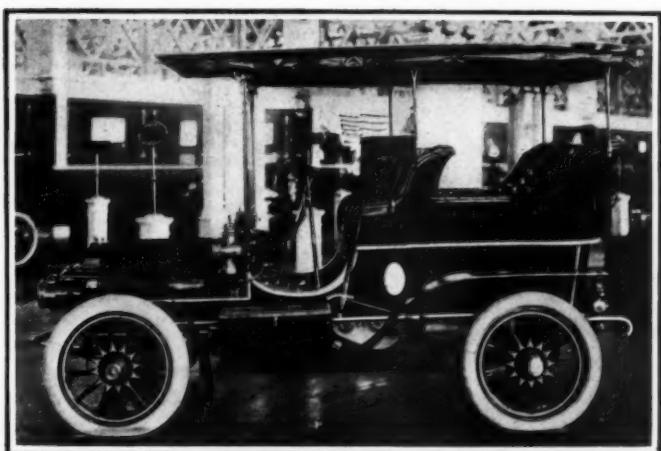
used, and the motor suspension is in every case similar. The motor is enclosed in a case which projects forward from the case surrounding the differential and driving gear or gears on the rear axle. It is supported only by the axle, but the latter is steadied by means of a transverse leaf spring attached at its center to the body, and at its ends to the front ends of the full elliptic rear springs, thus preventing the latter from sagging from the weight of the motor. Where two motors are used the principle of suspension is the same, only that the differential is omitted and each motor is geared to drive one rear wheel independently.

The National Motor Vehicle Co. attacks the problem of supporting the motor in a different manner. Here too the motor is encased and attached to the rear axle case, but its weight is carried principally by a

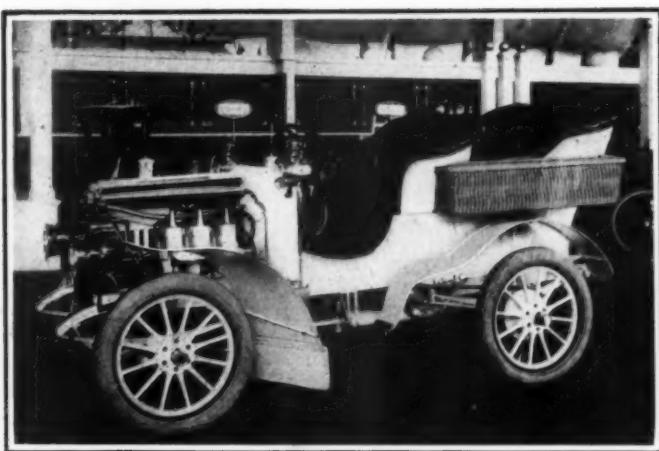
of the controller lever. By means of an interlocking device, it is impossible to press this button down except when the lever is in the off position. When it is pressed down and the lever moved to any running position it stays down of itself. The safety plug has a tapered body and a screw-thread on the end, so that it screws in positively and cannot fail to make a good contact.

The Woods Motor Vehicle Co. shows three vehicles: an extension brougham, with the operator's seat in the rear; a front operated brougham of conventional design, and a front operated victoria with a folding child's seat just behind the operator's seat and fastened to the rear. The Woods Co.'s exhibitor states that they use principally the Edison battery.

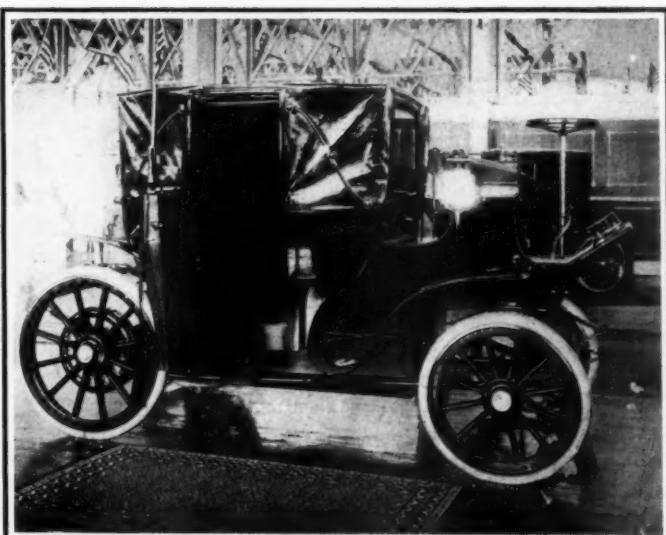
An interesting accessory, said by those who have used it to be very successful, is the Brown's dust deflector for tonneaus.



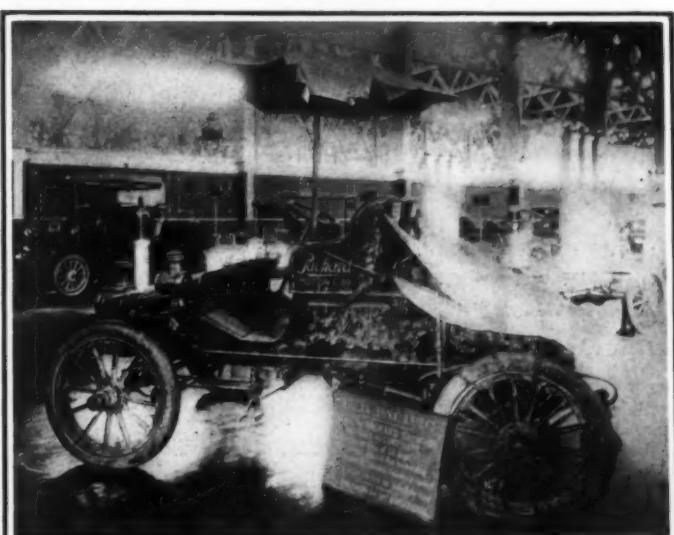
Artistically Finished Haynes-Apperson Tonneau.



Three-Cylinder Thomas Touring Car, Finished in White.



Electric Landau Exhibited by the Electric Vehicle Co.



Packard Old Pacific Which Crossed the Continent.

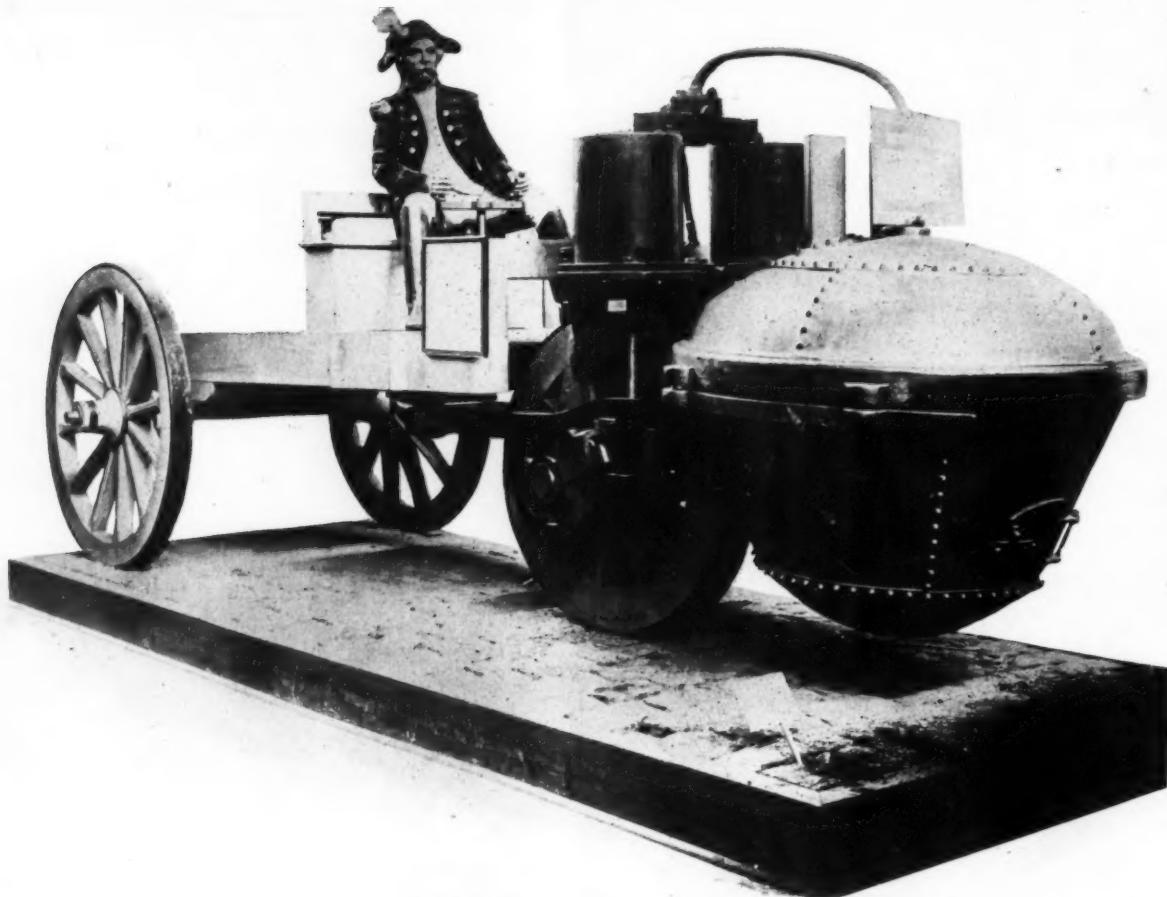


New Pope-Waverley Electric Tonneau, with Canopy.



Pierce Doctor's Carriage with Motor Under the Body.

A FEW OF THE ATTRACTIVE EXHIBITS IN THE AMERICAN AUTOMOBILE SECTION AT THE WORLD'S FAIR IN SAINT LOUIS.



FIRST AUTOMOBILE EVER CONSTRUCTED—PHOTOGRAPH OF FULL SIZE MODEL OF THE THREE-WHEELED STEAMER BUILT BY NICHOLAS JOSEPH CUGNOT IN FRANCE IN 1769, ON EXHIBITION AT THE WORLD'S FAIR. THE ORIGINAL MACHINE EXISTS IN A GOOD STATE OF PRESERVATION IN THE CONSERVATOIRE DES ARTS ET METIERS IN PARIS.

This device consists of a pair of bent sheet-metal wings mounted outside of the backs of the tonneau seats in such a way as to catch the air and deflect it from both sides toward the central space at the back of the tonneau. The air thus directed catches the dust which would otherwise come over the back of the tonneau and drives it astern.

The Graham Company shows a number of samples of its supplementary spiral springs, used to ease the small road jars. They are applied to any automobile in place of the shackles connecting the ends of the rear springs with the spring hangers, and have a range of about 11-4 inches. They are intended to close down solid just about the time that the leaf springs begin to feel the load, and consequently they absorb all the minor shocks, which make little impression on the main springs.

The Electric Vehicle Co. shows a heavy stake truck with underslung battery and Westinghouse motors suspended according to the Maxim patents. The two motors are fixed to a swinging frame hung from the body and carrying in rearwardly projecting brackets a pair of countershafts, one for each motor. From the outer ends of these countershafts sprocket chains drive the rear wheels, and radius rods are interposed between the axle and frame close to the countershafts. The rear springs are semi-elliptic, and separate radius rods are employed between the axle and the main frame to

guide the former. A delivery wagon chassis is also shown, which, though a good deal lighter than the stake truck, is of quite similar character. Two regular broughams, one victoria and one surrey, the latter two vehicles being constructed with reach rods between the axles, complete the exhibit, which does not include any gasoline cars.

The Studebaker Mfg. Co. shows four electric runabouts, with Hercules running gear and Westinghouse motors. Two of the runabouts are equipped with tops. One "General" gasoline runabout is shown, and a charging plant, comprising an alternating current motor coupled to a direct current generator, completes the exhibit.

The Duryea Power Co. shows a three-wheeled hansom cab, operated from the rear. It is steered by a sort of bicycle handle-bar, twists of whose handles control the throttle and brake. A four-wheeler, with one lever control, of the familiar Duryea pattern, is also shown, likewise a motor and transmission gear, separately mounted for inspection. A Duryea wagon of the date of 1895 attracts much attention.

The Ford Motor Co. shows a runabout, tonneau car, and chassis, all of the standard 8-horsepower design, with the company's "double opposed" horizontal motor. A motor is also shown in partial section, exhibiting the arrangement of the valves and connections.

The Cadillac Automobile Co. shows only its Model B machines, brought out this year. These comprise a runabout, touring car with tonneau, surrey, delivery wagon, and a chassis, all of 8-horsepower. The Model B machine has a number of interesting features, notably the pressed steel frame and the pressed steel front axle of girder shape, with transverse front spring. The radius rods are tubular and have ball-and-socket joints at both ends. Among the minor details it may be noted that the battery switch is connected with the oil cock, so that closing the former opens the latter, which, therefore, cannot be forgotten. In somewhat similar fashion the operator is protected against the consequence of his own carelessness in attempting to crank the motor with the spark advanced. A guard connected with the spark advancing mechanism obstructs the hole through which the starting crank must be inserted, unless the spark is fully retarded.

The Geo. N. Pierce Co. shows one "Great Arrow" four-cylinder car of 24-horsepower, one stanhope of 8-horsepower, and one doctor's runabout, which is substantially the stanhope with a closed body for use in bad weather. A stanhope chassis is also shown, in which the extreme simplicity and directness of the transmission mechanism are clearly seen.

The E. R. Thomas Motor Co. shows one of its three-cylinder, 24-horsepower touring

cars, handsomely painted in white, with side baskets and complete equipment for touring.

Thomas B. Jeffery & Co. show a full line of Rambler gasoline cars, comprising a single-cylinder runabout, single-cylinder touring car, single-cylinder delivery wagon, and two two-cylinder touring cars, one without the tonneau. These machines follow accepted lines of runabout and light touring car design in most respects. The inlet valves are mechanically operated. The planetary system of change gears is used, and the outboard end of the engine shaft beyond the planetary gears is supported in a bearing attached to a side member of the frame. The engine itself is hung on dropped cross members of angle steel. One rather neat detail observed about these machines is the method of holding down the cover of the carburetor float chamber. Instead of being screwed down or held by a slotted lug and a thumb screw, it is held with no screws whatever, by a bent wire in the form of a U, with the ends curled inward and downward. These ends rest in a circular groove in the cap, and the bottom of the U, which is nearly square, springs under the bottom of the float chamber.

The Packard Motor Car Co. shows a Model L tonneau, a Model F tonneau, and a limousine, Model K; also Model L polished chassis. The Model F car, *Old Pacific*, which made the trip across the continent last year with Tom Fetch at the wheel, is also in the stand, its rear wheels looped with chains and all the stains and scratches of its long journey still upon it.

The Knox Automobile Co. shows a single-cylinder light tonneau car, a double-cylinder tonneau car with canopy top, and a double cylinder chassis, in which the character and arrangement of its characteristic porcupine air-cooled motor is plainly in evidence. A crankshaft and planetary gear of the single-cylinder car, and also a Lemp steering check, such as is used on all the Knox cars, are shown mounted separately.

The White Sewing Machine Co. shows three of its well-known steam touring cars, finished in different colors. Two of the cars are of the 1904 model, and one of the improved 1905 type, which in general appearance closely resembles a gasoline car. Another exhibition is the White steamer which won honors in the memorable endurance run to Pittsburg in 1903, and also in the recent tour to St. Louis.

The Winton Carriage Co. shows a two-cylinder touring car and a chassis, both of the 1904 model.

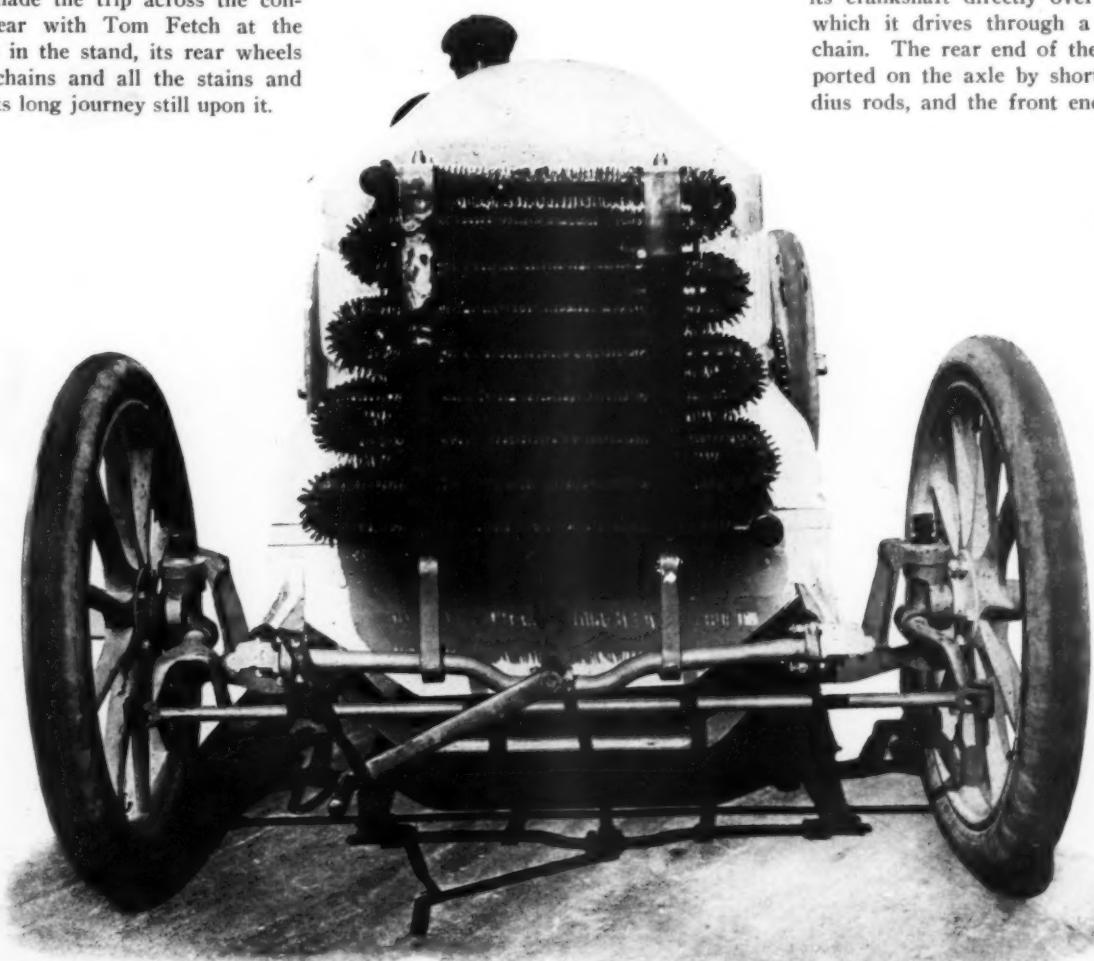
The Olds Motor Works show no less than eleven vehicles of all sorts in their exhibit, the regular models being as follows: One standard runabout, with the motor partially cut away to show the action of the piston and valves; a runabout with folding top and storm apron; a runabout

with dos-à-dos seat behind; a touring runabout, with the tanks under a front bonnet; a tonneau touring car with canopy, and two delivery wagons. In addition, the transcontinental runabout, piloted by L. L. Whitman and E. J. Hammond, is shown, and likewise a specimen for the antiquarian, the first Oldsmobile, built eight or ten years ago. It is a surrey, almost as high as an omnibus, with a single-cylinder horizontal gasoline engine under it which must have made it nearly as fast. The Olds vehicles this year follow the general fashion in having enclosed hub brakes with internal expanding rings. The differential is larger than last year, and is of the spur gear type. The touring runabout and touring car have worm steering gear, but the little standard runabout retains the tiller.

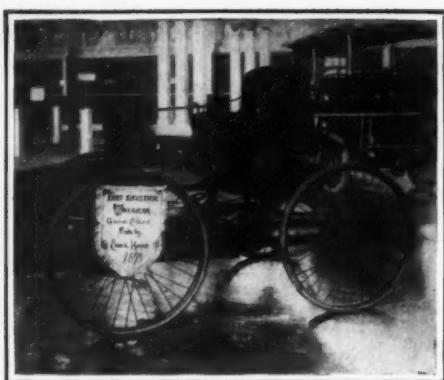
The H. H. Franklin Mfg. Co. shows one runabout and one tonneau car, both of the 10-horsepower size, with the familiar four-cylinder Franklin air-cooled motor.

Near by is seen Major Davidson's latest automobile gun-carriage, a photograph of which was published in our issue of June 4. It is loaned by the Northwestern Military Academy, Highland Park, Ill.

Grout Brothers show one of their 7 1/2 horsepower steam runabouts, a runabout with surrey seat added, and a runabout chassis. This able little machine has a horizontal motor suspended horizontally with its crankshaft directly over the rear axle, which it drives through a short sprocket chain. The rear end of the engine is supported on the axle by short adjustable radius rods, and the front end on a hinge at



A MODERN RACING AUTOMOBILE—DOG'S EYE VIEW OF THE BIG DE DIETRICH PARIS-MADRID CAR.



Elwood Haynes's First Car Built in 1893.

the back of the boiler, flexible steam and exhaust connections providing for movement due to the play of the springs. The main fuel tank is not under pressure, the gasoline being forced by a small pump, worked from one of the crossheads, into a pressure tank on its way to the vaporizer. A compression spring in the pump plunger automatically limits the effective action of the latter to times when fuel pressure is required. The power feed pump is worked from the other crosshead. The throttle is controlled by a lever under the steering wheel, and pressure on the brake pedal automatically closes the throttle—an important improvement. The frame is ash, reinforced by steel flitch plates.

The Vehicle Equipment Co. shows two standard broughams, a hansom cab, delivery wagon, stake truck, and one rear-operated victoria, all having the characteristic pedestal running gear, which distinguishes the product of this firm.

The Waltham Mfg. Co. shows one Orient buckboard, with parcel delivery box attached. The Orient buckboard needs no introduction to our readers.

Saks & Co. show a very complete line of automobile garments for both sexes, including cravette and rubber coats and caps. A new feature about the rubber coats is the construction of the sleeves, which, inside of the regular ends, have inner ends with elastic wristbands to close them snugly about the wrist. A variety of goggles, caps, and horns are also shown.

A. L. Dyke shows a large line of supplies, parts and tools, including tires, wheels, sprocket-chains, speed changing gears, boilers, jacks, lubricators, burners, lamps, and automobile clothing.

The Twentieth Century Mfg. Co. shows the Twentieth Century gas and oil lamps and generators.

The Motsinger Device Co. shows a number of Autosparkers in operation by a large flywheel.

The Veeder Mfg. Co. shows a full line of its revolution counters, cyclometers, odometers, and liquid centrifugal tachometers, many of the exhibits being shown in action. Some of the Veeder Co.'s fine castings for typewriters and similar machines are also shown.

The Badger Brass Works Co. shows two

glass cases of the Solar gas and oil lamps, including two "Phares Solar" of uncommon size.

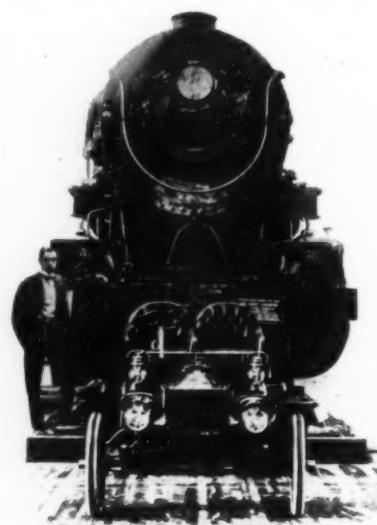
Gray & Davis show a full line of gas and oil lamps, including their new Bullet headlights.

About midway between the American and French sections, at the eastern end of the Transportation Building is a model of the

historic Cugnot gun carriage, the first automobile that ever ran. It is the same size as the original, and a very lifelike effigy represents the French military officer who drives it. It is perhaps the most interesting of a number of models of early vehicles, chiefly locomotives, which comprise one of the features of the Transportation building.

Foreign Sections at the World's Fair.

IT is in the French section, naturally, that the American observer will find the largest number of novelties. Many of the machines are already familiar to our readers, but others are not, and in several instances it seemed worth while to obtain quite full descriptions of the more important



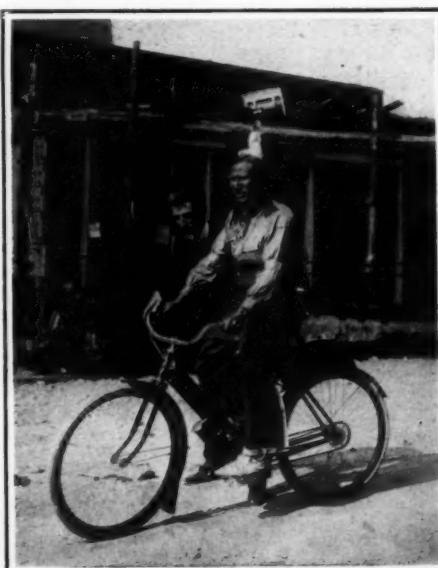
Oldsmobile Runabout in Front of the Biggest Locomotive in the World.

machines. Not all of the exhibits, however, were of 1904 date, several concerns sending over last year's cars. This naturally was especially apt to be the case with body builders, who exhibited their styles on any chassis convenient.

At the De Dietrich stands are shown five cars and one chassis, besides a racing launch, the *Pi-Ouit* (Peewit) II., with a De Dietrich motor of 24 horsepower, and a speed of about 16 miles per hour. Of the cars, perhaps the Paris-Madrid racer, of 55 horsepower, driven by Chas. Jarrott in that event, attracts as much attention as anything. It resembles recent French racers in having the lines of the body carried back as continuously as possible from the huge bonnet. The driver sits right on the floor of the car, and behind him are the gasoline and water tanks, having smooth outer surfaces, tapering to a rounded wedge form at the rear. Underneath the car is a metal pan enclosing all the parts, and giving a smooth passage to the air. The car is driven by two chains, but the sprocket-wheels on the countershaft are as large as those on the rear wheels, so that there is no reduction of speed. The

frame is of armored wood, and the front axle is a drop forging planed away between the spring seats to a slight suggestion of the I-beam design. A neat detail is the arrangement of the filling plug for the gasoline tank. This plug is very large, and is located at the bottom of a fixed funnel about 8 inches in diameter, in the top of the tank. This permits the gasoline to be poured in very rapidly.

The separate chassis is of the 1904 model, and has a number of details of interest. The frame is of pressed steel in channel form. No false frame is used, but the motor is supported on a pair of short pressed steel channels lying fore and aft, hung from the front transverse member, and integral with another transverse member just back of the flywheel. The gear box, like the Panhard gear box, is very long, is hung from two dropped pressed steel channels at front and rear. Between the clutch shaft and the first gear shaft is a short shaft with universal joints at both ends. The engine, which is of 35 horsepower, has the cylinders cast in pairs, with integral heads and water jackets. The inlet valves are located exactly as in the Mercedes engine, over the exhaust valves, and are like them operated mechanically by cams and rocking levers. Both inlet and exhaust cams are on the same shaft, and the inlet valves are very large, although not annularly slotted like the Mercedes. On a corresponding shaft on the other side of

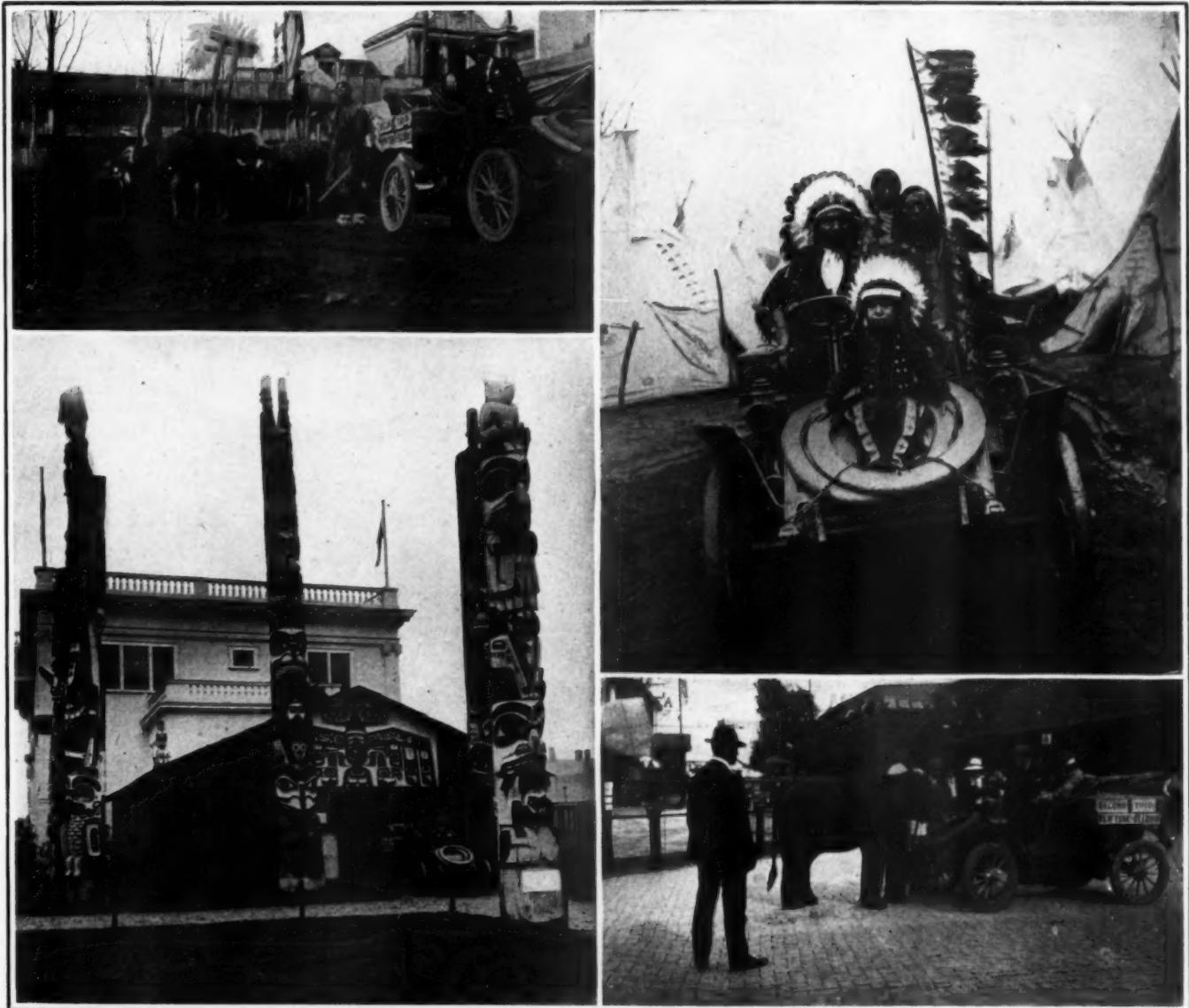


An Indian on an Indian.

the engine are cams working the contact igniters through light levers. The spark is timed by a spiral sleeve connecting this shaft with the gear which drives it. By shifting the sleeve along this shaft, the latter is rotated with respect to the gear. A Simms-Bosch magneto is used. It is so powerful that no battery is required for starting, a magneto speed even as low as that given by turning it by hand being sufficient to give a fair spark. The current is led to the insulated electrodes of the igniters from an insulated brass rod or bus bar mounted on

valve lever, which is normally held in the closed position by a spring, but is drawn to the open position by the tension of the governor spring when the engine slows down. The hand control lever acts to hold the throttle open. In addition to this there is a connection from the clutch pedal to the throttle lever which pushes the throttle partly shut against the governor when the clutch is released, thus compelling the engine to slow down. The clutch spring shows a departure from common practice in being made a stationary member entirely outside

The rear wheel brakes are of the enclosed expanding type now fashionable. They are supported on the rear axle, and the reducing rods are of unusually rational form, designed to resist both the twisting effect of the brakes on the axle and the pull of the chain. They are of triangular form, pressed from sheet steel, with the base of the triangle attached to the fixed members of the brakes. They are perforated with a number of holes, and the top and bottom edges are flanged over for stiffness. The gasoline is carried in a tank at the extreme rear of



Australian Bushman Rounds Up the Ostriches for Inspection.
Among the Totem Poles at the Alaska Exhibit.

Sioux Chief and His Family in Col. Cumming's Wild West.
Baby Elephant on the Pike Tries to Gobble a Lamp.

TOURING THE SIGHTS, ON THE PIKE AND OFF, INSIDE THE GROUNDS AT THE WORLD'S FAIR.

the engine, with which four pairs of spring clips make contact. Slotted fiber sleeves are arranged in connection with these clips in such a way that by giving the sleeves a half twist the current may be shut off from any cylinder at will for the purpose of testing the others. The arrangement for controlling this engine is a little out of the ordinary. The governor acts on the throttle

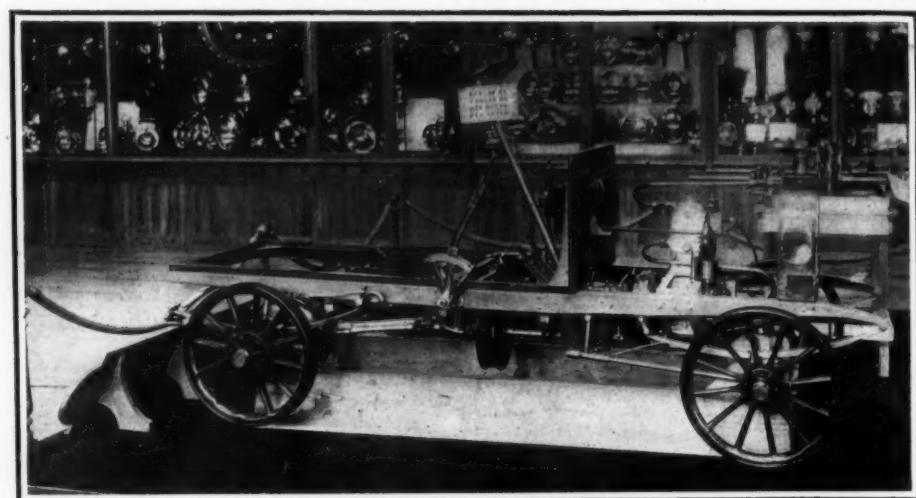
of the clutch. It is above the clutch shaft and attached at one end to a cross member of the frame, the other end being connected to the clutch pedal lever. It therefore imposes a constant end thrust on the clutch, which must be taken up by a ball thrust bearing which is in constant action when the clutch is engaged. On the other hand, it is very readily disconnected.

the frame, and is fed to the carburetor by the pressure of the exhaust gases, a relief valve being provided to avoid an excessive pressure. To start the motor after filling the tank it is evidently necessary to feed gasoline by some other means. This is provided for by a small gasoline cup on the dash, connected with a standpipe, also on the dash, by which the main gasoline tank is

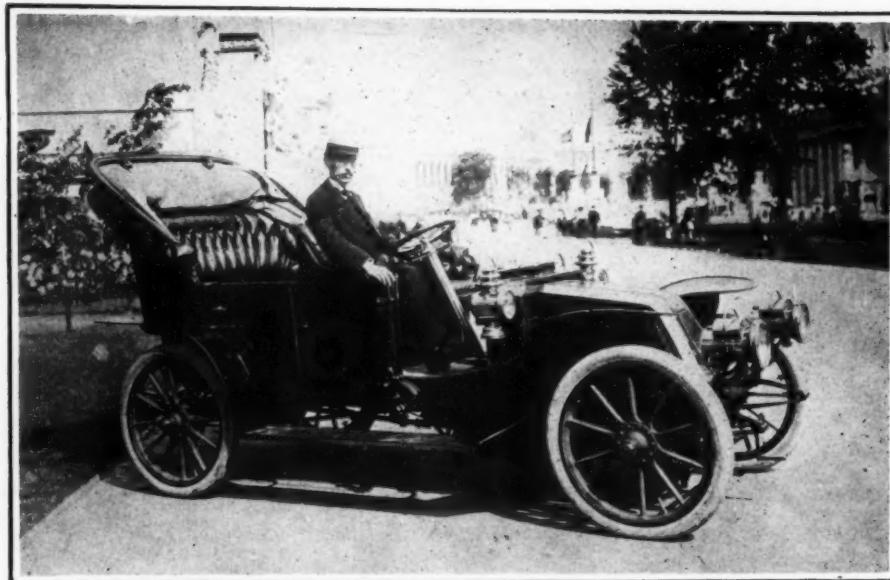
filled. The gasoline is poured in until it rises in the small cup, which indicates that everything is full. Then a cock is closed between the cup and the main gasoline pipe, and the gasoline from the cup allowed to flow by gravity to the carburetor. As soon as the motor starts a pressure is created in the tank which thereafter keeps the carburetor filled. The only objection to this arrangement would seem to be the need of a rather large pipe from the standpipe back to the tank, which might, under some circumstances, lead to broken joints and leakage.

The *Pi-Ouit II.* reversing gear is evidently made from a good-sized differential. A short cardan shaft is interposed between the thrust-bearing and keel-stuffing box, and the thrust of the screw is transmitted through the universal joints. The propeller has three blades, and is carried a good deal below the keel. An examination of the under-water body shows that the stern is of the conventional form, with an exceedingly flat V section. The forepart of the hull is practically a wedge, with rounded bottom edges merging into the conventional flat section amidships. The draught is about uniform for the first half of the length, and then slopes upward to nothing at the transom.

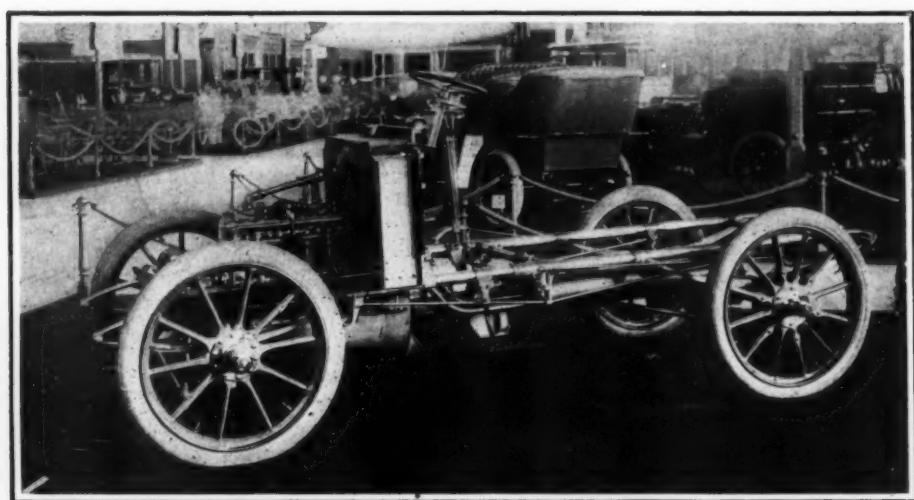
Of the complete cars at the De Dietrich stand, one is an omnibus, seating about ten passengers. It has solid rear tires, and the spokes of the wheels enter metal thimbles threaded into the felloe, by screwing which the spokes



FIRST APPEARANCE OF THE FOUILLARON CAR AT AN AMERICAN SHOW—NOTE TRANSVERSE BELT TRANSMISSION BETWEEN THE STEERING PILLAR AND SIDE LEVERS.



LATEST MODEL RENAULT DOUBLE PHAETON WITH SIDE ENTRANCE AND HOOD AND EQUIPPED WITH THE NEW STYLE OF RADIATOR.

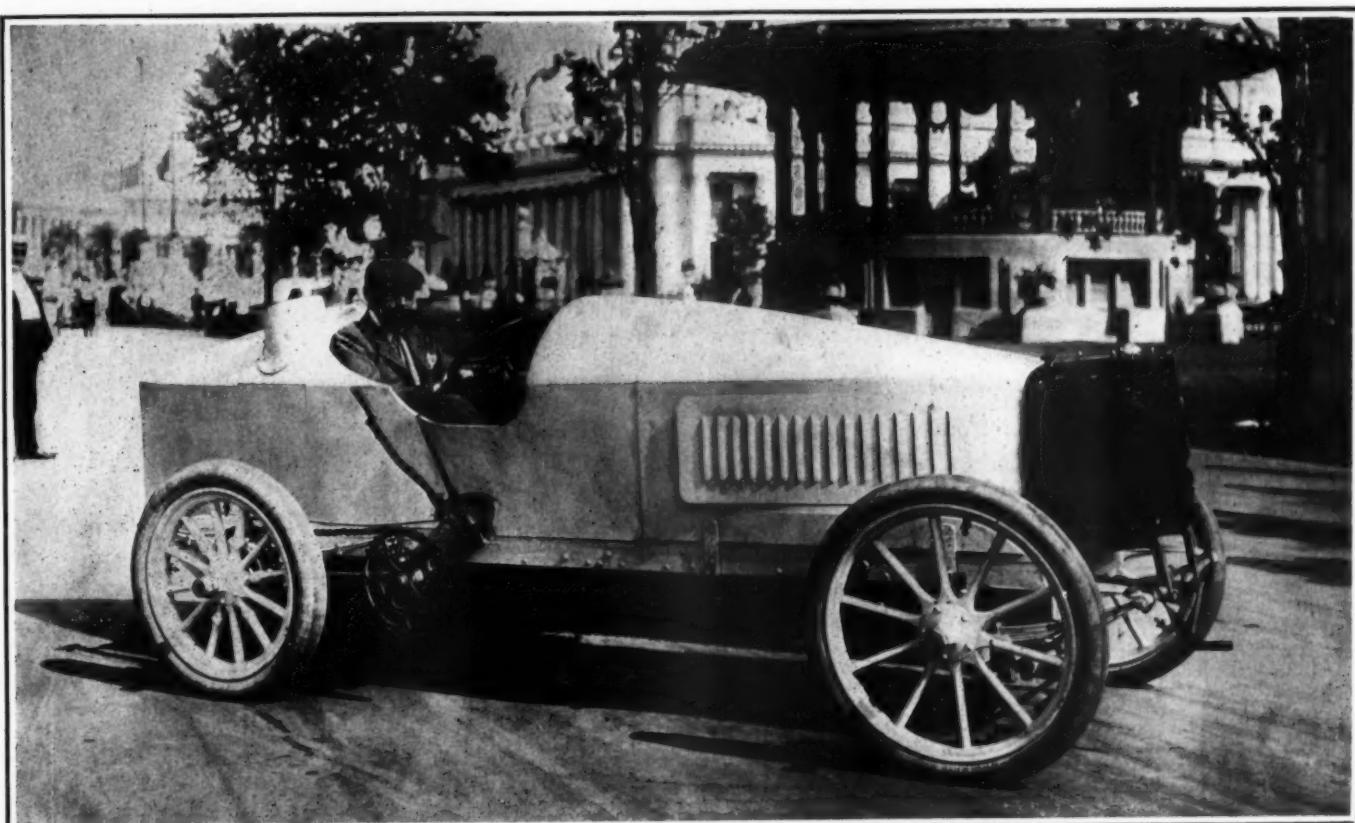


CHASSIS OF RENAULT TOURING CAR IN SMITH & MABLEY STAND IN THE FRENCH SECTION—NOTE POSITION OF RADIATOR IN FRONT OF DASH.

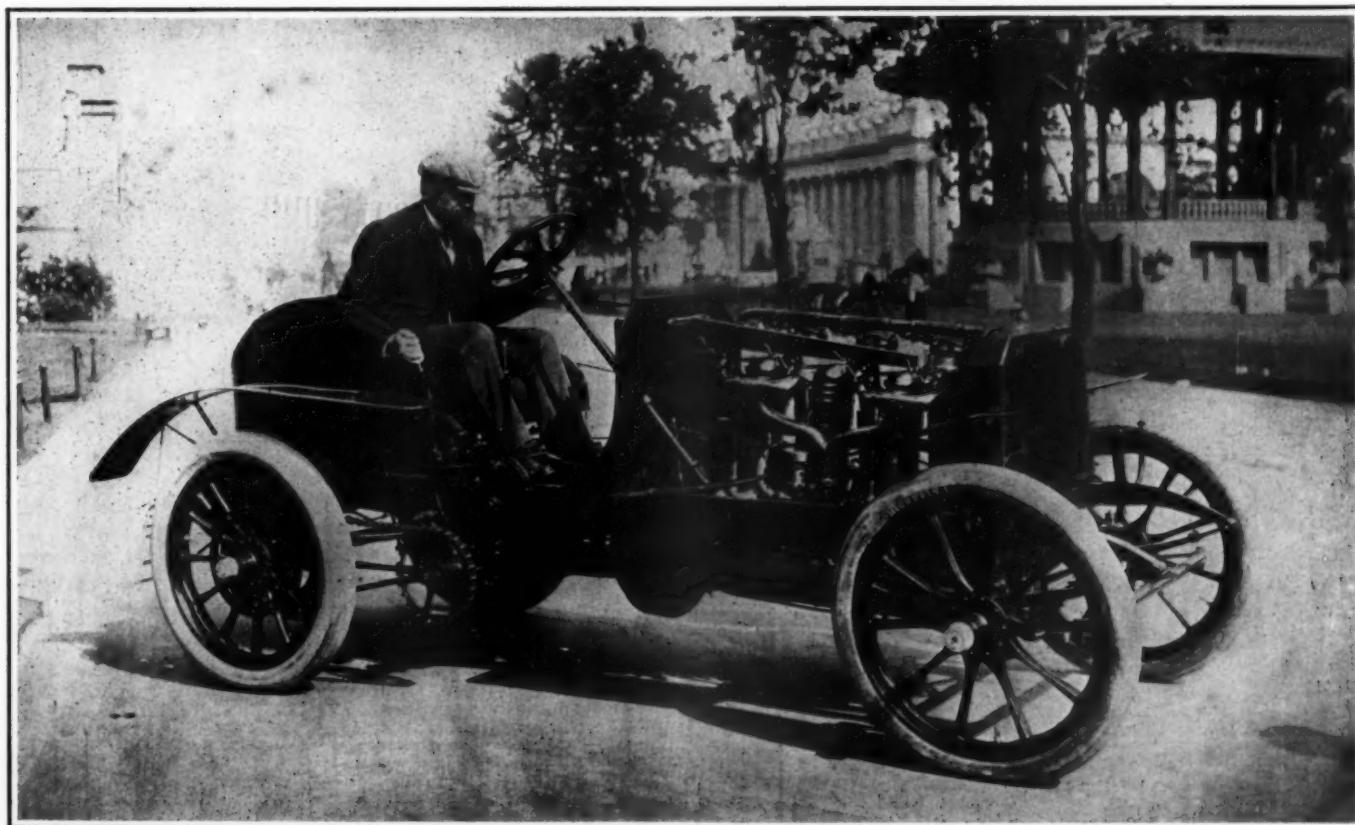
may be tightened. A limousine body by Rothschild is very handsome in design and finish. It has a folding child's seat back to back with the driver's seat, and of course within the glass front. Entrance is from the side. Among the appointments is a speaking tube having an inner flexible end, and at the outer end a bell mouth fixed over the driver's head. Under the top are stretched silken cords fastened at intervals, which serve to hold papers and small parcels. A large tonneau touring car also has a Rothschild body. Both of these machines,

like all the others except the chassis, appear to be of 1903 design mechanically. The last car, with body by Audineau-Martin, is without doubt the most elegant exhibited at the Fair. It is a rear entrance berline of unusual size and richness of design and appointment. Its four separate inside seats are swivel chairs, one in each corner, and on each side between the chairs is a small desk with drawers and parcel space inside. At the front is an electric signalling device for the operator, with eight or ten buttons corresponding to different directions, such as "turn right," "turn left," "slowly," "go home." The general color scheme is green and olive. The body, upholstery and carpets are in different shades of green. The curtains are olive and greenish yellow, and the desks and interior woodwork are in the natural wood and inlaid.

At the Panhard and Levassor stand no striking novelties are shown, the most in-



M. COSTIGLIO AT THE WHEEL OF THE DE DIETRICH RACER THAT JARROTT DROVE IN THE PARIS-MADRID RACE.

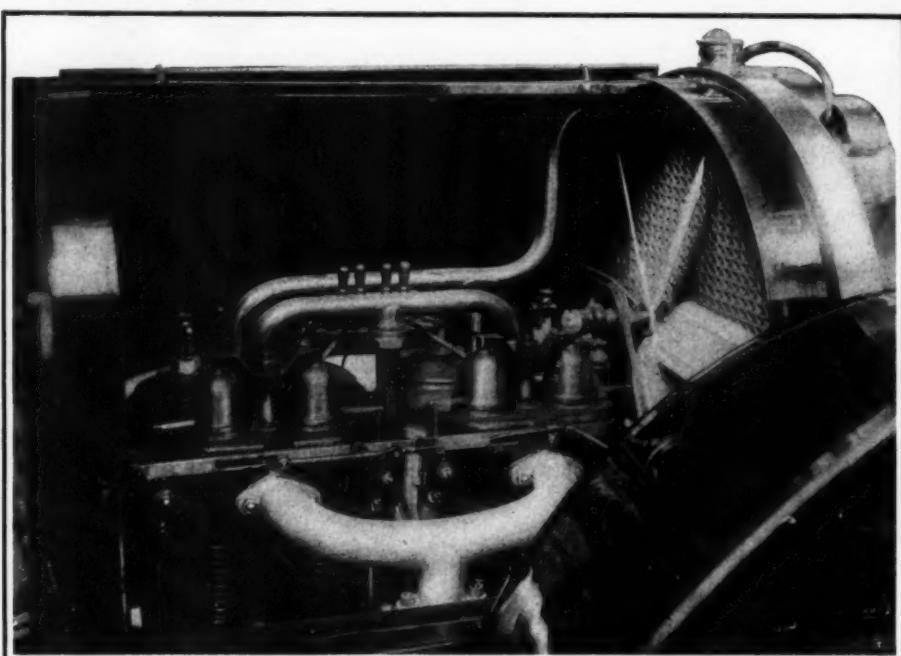


M. FAIVE IN THE DRIVER'S SEAT OF THE PANHARD CAR THAT RENE DE KNYFF PILOTED IN THE IRISH GORDON BENNETT.

teresting machine being the Irish Gordon-Bennett racer driven by René de Knyff. This navy-blue 70 horsepower car is of rather ungainly appearance, which is due mainly to the fact that the motor shaft, instead of being horizontal, slopes downward a great deal toward the front, apparently with the idea of getting the weight as low as possible. The gear box is quite unlike the standard Panhard design, the cross counter-shaft being at its front end underneath the clutch shaft. Apparently three forward speeds and a reverse are provided. The pressed steel channel side members are given a peculiar appearance by large lobes extending downward to carry the shaft bearings. The driven member of the clutch is conical, and appears to be squeezed between the flywheel rim, a conical flange of which is inside the driven member, and an outer and surrounding conical rim attached to a web and moving with the flywheel. The clutch is released by drawing back the outer member.

Two double phaetons with side entrance are shown, one of 35 horsepower, its engine having copper water jackets similar to those of the 70 horsepower racer, and the other of 24 horsepower with integral cast water jackets. Both of these engines have mechanically operated inlet valves opposite the exhaust valves. The larger machine has a body by Kellner, with a rack projecting from the rear for the support of touring hampers. The smaller car has a body by Labourdette, with a victoria top over the rear seat. A light delivery wagon of about 10 horsepower, with pneumatic tires, is also shown.

A Panhard boat motor, apparently of 30 horsepower, is shown ready to be installed.



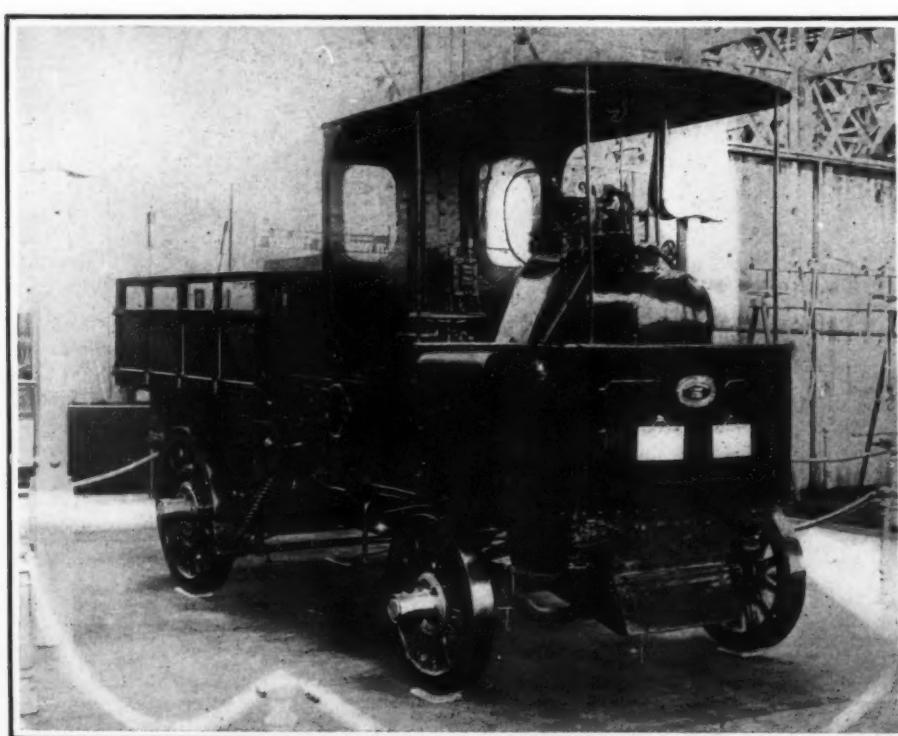
LOOKING UNDER THE BONNET OF THE HOTCHKISS CAR IN THE FRENCH SECTION.

The flywheel is at the rear end of the motor and drives through a friction clutch. At the front end is a wooden A frame, at the top of which is the starting crank, acting through a sprocket chain. Inside of this frame are the spark coil and magneto, the latter being driven by bronze skew gears from the cam shaft gear. On the front face of the magneto is a horseshoe-shaped fiber mounting, carrying the distributor for the secondary current. The spark is timed by a double lobed cam at the front end of the magneto shaft, making two contacts per revolution of the magneto, or one at the

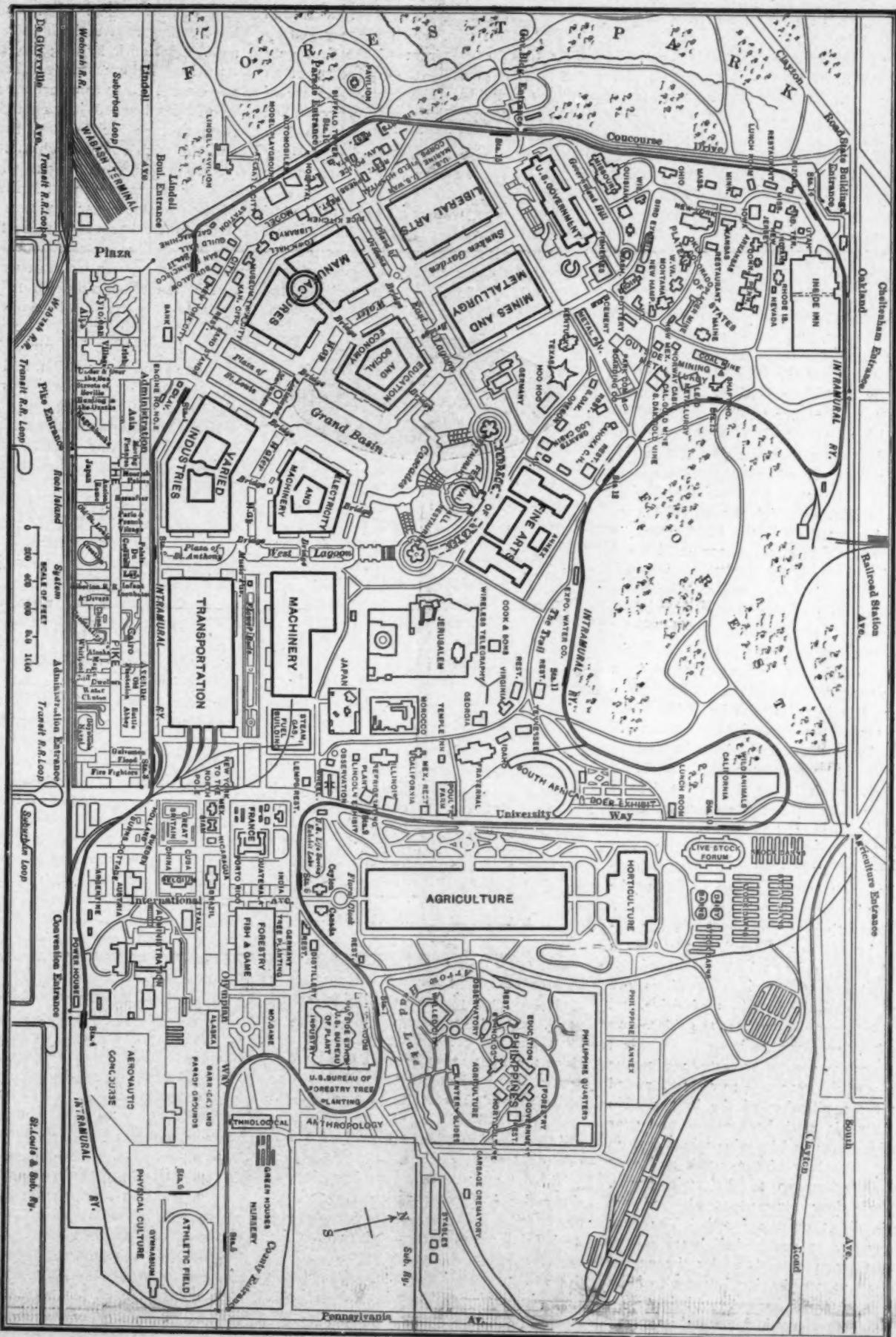
proper time for each cylinder. The distributor consists of four fingers bearing on a revolving fiber barrel with an inlaid metal segment. This barrel is driven by brass gears from the magneto shaft. A single spark coil is used, the distributor sending the current to one cylinder after the other in order.

The spark timing is changed by a spiral sleeve connecting the armature shaft and its gear. Shifting this sleeve rotates the armature shaft with reference to the gear and rotates also the gears actuating the distributor. The motor is supplied with an ordinary (not Krebs) carburetor and governor without accelerator. The inlet valves are automatic and located over the exhaust valves.

The Renault exhibit under the auspices of Smith & Mabley comprises a tonneau and a limousine car, both of 1903 models, and two chassis, one of last year and one of 1904. The last-named chassis, which perhaps presents the finest specimen of refined workmanship and up-to-date design in the Show, embodies several features described in these pages last April 30. Chief among them is the location of the water radiator next to the dash, and the use of an air-tight bonnet and a flywheel fan in such manner as to draw the air first through the radiator outside of the bonnet, then back again between the radiator and the dash into the interior of the bonnet, after which the air is discharged downward and back through the fan blades on the flywheel. The frame of the Renault is of steel tubing, as usual, and in the larger cars the side members are trussed. The rear axle is steadied against stresses due to driving and braking by two radius rods, whose front ends pivot at a common point in a spring socket attached to the frame, and extending backward, one to the top and the other to the bottom of the case surrounding the bevel gears. Thus



TURGAN-FOY STEAM TRUCK—ONLY HEAVY COMMERCIAL VEHICLE IN FRENCH SECTION.



GROUND PLAN OF THE LOUISIANA PURCHASE EXPOSITION IN SAINT LOUIS (COVERING 1,400 ACRES) SHOWING THE LOCATION OF ALL THE BUILDINGS—AMERICAN AND FOREIGN AUTOMOBILE EXHIBITS ARE CONTAINED IN THE TRANSPORTATION BUILDING IN THE MIDDLE FOREGROUND.

one of the rods is always in tension. The service brake is located at the front end of the short bevel driving pinion shaft, instead of close to the gear box as ordinarily. It is encased, and is operated by the torsional movement of a tube extending back from the brake pedal.

The inlet valves in this and last year's model are mechanically operated, and the lift of these valves is regulated by a device precisely similar to the De Dion exhaust valve regulator. The inlet valve cams act on rollers at the ends of short oscillating fingers, and these fingers are pivoted at their other ends to short arms connected with a rocking shaft controlled by hand. As this shaft is rocked the fingers are moved to or from the cams, and the effect is that they receive from the latter a greater or less oscillation. Thus the motor is retarded independently of the governor.

The Renault carbureter has one fixed inlet, which takes hot air from near the exhaust pipe, and a much smaller cold air inlet which is governed by a shutter regulated by hand. The governor control comprises a cylinder shutter which throttles the mixture and is acted on in the regular way by the governor. The accelerator pedal when pressed down pulls this throttle valve open, and in this position the governor lever merely compresses a spring which connects it with the throttle valve stem. The governor is fully encased, and in fact all of the working parts of the motor are protected from dust as thoroughly as possible. The cylinders are cast in pairs with large hand-hole at the top of the water jackets, which are covered by brass caps held down by studs.

Ignition is by magneto, which is driven by a shifting spiral gear to vary the time of the spark. The steering mechanism comprises a bevel gear at the base of the steering shaft, meshing with a bevel pinion fast to a nut which turns on a steep-pitch horizontal screw connected through a link to the right-hand steering knuckle.

An inspection of the Hotchkiss car exhibited by Kellner showed that it has a pressed steel frame, which is out of the ordinary in that the side members are trussed. Transmission is by shaft drive, and there are long radius rods at the sides, both ends of the rear springs being in shackles; but the springs are not protected against the tendency of the rear axle to rotate forward under the application of the brakes. No false frame is used, both engine and gear box being supported by wide wings cast on the bottom halves of the crank and gear cases, extending up to the main frame. There are four forward speeds and the drive is direct on the fourth. The gear shaft appears to run in ball bearings. A sheet-metal pan extends under the engine and gear box, terminating just back of the service brake, which is of unusual size. The clutch is conventional in form, and its spring is enclosed within the long rearwardly projecting hub sleeve at the end of which two lugs engage a sort of floating ring about

2½ inches wide, whose rear face has two corresponding notches 90 degrees around from the first two, which are engaged by other lugs at the front of the first gear shaft. This provides the equivalent of an Oldham coupling. The rear brakes are of the enclosed expanding type, and are applied by a compensating wire cable tightened by pulling up a side lever, instead of pushing it as usual. The rear springs are of the platform type.

The engine, which appears to be of about 24 horsepower, has cylinders cast in pairs with mechanically operated inlet valves opposite the exhaust valves. Ignition is by primary contact spark, and the

universal joint just back of the gear box, is still retained. The latter cars, however, have radius rods at both ends of the rear axle. Ignition is by magneto, and the construction of the contact sparkers is unusually simple. Snap cams are used, with their snap faces beveled just enough to permit them to turn backwards without damage, and the push rods on which they act terminate in adjustable buttons, which midway of their return movement strike the fingers of the movable electrodes, thus causing the latter to break contact inside the cylinder.

The cylinders are cast separately with the heads of the water jackets open. The inlet valves are mechanically operated and located opposite the exhaust valves, interchangeable cam shafts being used. The walls of the valve chambers project upward flush with the top of the water jacket, and brass water jacket heads are used, which are cut out to slip over the valve chamber walls, with which a watertight joint is made by threaded screw rings and gaskets. The tops of the valve chambers are closed by large screw plugs. The carbureter is automatic, the auxiliary air inlet being controlled by an automatic valve. The fixed opening is readily adjustable by a shutter.

One Darracq tonneau touring car of 20-horsepower is shown. It is a duplicate of the 20-horsepower car with which F. A. La Roche made his non-stop run to St. Louis. It is of this year's model and contains the up-to-date features which have been referred to in these pages at various times. The pressed steel frame is of the ingenious one-piece construction which attracted so much notice at the Madison Square Garden Show last January. Three forward speeds with direct drive on the high gear are given, and all the gear shafts run in ball bearings. All the brakes are of the enclosed expanding type, and are operated by a powerful cam action. The inlet valves are mechanically operated and opposite the exhaust valves. The governor is on the crankshaft instead of on the time shaft as usual, and this makes a very compact construction on account of the high-shaft speed.

In the Mors exhibit are shown a victoria top double phaeton, a tonneau with very high seats of rather ungraceful design, a coupé seating two passengers inside, and two on the front operator's seat, and a bus or depot wagon seating four passengers inside. The last-named vehicle is provided with a swinging glass front. The Mors machine which is already familiar to our readers, is of very workmanlike but quite conventional design, with mechanically-operated inlet valves, contact spark, two-chain transmission, and direct drive in the gear box on the fourth speed, the arrangement in this respect being the same as has been used for two years past.

Two G. Richard-Brasier cars are exhibited. These cars, which have already been described in these pages, have automatic inlet valves in the smaller powers,



N. A. A. BRASS SIGN AT THE FAIR.

details are a little out of the ordinary. Both the insulated and the movable electrodes are contained in a plug, which is located just over the inlet valves and is held in place by a bell quite like that which holds in place the inlet valve cage of the De Dion motor. In the Hotchkiss car, however, the bells are held down two and two by yokes and studs. The timing of the spark in each cylinder is adjustable separately from the others.

Three tonneau cars of various sizes are shown by A. Clement; also one 30 horsepower chassis. These cars have pressed steel frames and motors of two or four cylinders, according to the power. With the lower powers the transmission gives three forward speeds, and with the higher powers four forward speeds, the high gear being direct in both cases. The most characteristic feature of the Clement "Bayard" cars, the propeller shaft with a single

and mechanically opened valves in the larger sizes. They have three and four forward speeds according to size, but do not give direct drive in the higher gear. These cars are among the lightest of French cars for their horsepower, and are correspondingly efficient, while at the same time they avoid extremes in design.

A complete exhibit of Aster motors is shown, including motors for automobiles, boats, and stationary work, all of them of practically the same high speed type. They range in size from 2 3/4 horsepower single cylinder, air cooled motor, up to a 30-horsepower four cylinder engine. The cylinder sizes of the latter are 4 1/4 inch bore by 5 1/2 inch stroke. The smaller motors have automatic inlet valves, and the large ones mechanically opened valves. All of them are fitted with Longuemare carburetors, with the Aster automatic attachment. The latter is quite similar to the Krebs auxiliary inlet governed by a diaphragm, the Aster device having a spring instead of the diaphragm.

For cruising launches these motors are geared down about 2 to 1 and reversed by sliding gear, just aft of the motor. For racing boats, the drive is direct. A 6 1/2 horsepower single cylinder boat motor is shown with a Meissner patent reversing propeller. This propeller is quite similar to many American contrivances of the same sort, but the reversing hub is completely enclosed. The two blades are wide near the hub and taper considerably toward their ends. A little direct coupled motor and dynamo are shown, the outfit developing 13 amperes at 120 volts, the speed being 1,500 r. p. m. A 4-cylinder motor of 20 horsepower with an Aster kerosene or crude oil attachment to the valve chamber is expected to be added shortly.

A steam truck by Turgan Foy is among the vehicles new to this country, at the exhibition. It uses a normal working pressure of 220 pounds per square inch, and liquid fuel is burned. Transmission is by side chains. A compact water tube boiler is the

principal feature of the machine, the engine being of conventional pattern.

Another machine which has been built in France for several years, but has not before found its way to these shores, is the Fouillaron runabout, with expanding pulleys. These pulleys take the place of speed-changing gears, and consist essentially of strips of metal, forming elements of intersecting cones with common axes. By bringing the bases of the cones close together the diameter at intersection is increased, and by separating them the intersection comes nearer to the apexes of the cones. A belt, built up of short cross strips of leather with beveled ends, strung or linked closely together edge to edge, runs over the two pairs of cones thus created, and its tension is kept constant, because the controlling mechanism increases the diameter of one pulley in proportion as it decreases that of the other. The machine in the exhibit has an 8-horsepower De Dion motor mounted in front with a clutch just behind it. A claw coupling of very good design, with narrow teeth, having the space between them filled with fibre blocks, is interposed between the clutch and the driving pulley. From the driving pulley the transmission is direct through pro-

peller shaft to the rear axle. The pulley diameters are regulated by a lever at the side. A feature of construction in which the chassis exhibited differs from previous models of this moderate priced car is that the belt drive is placed at right angles to the side frames, instead of in a fore and aft direction.

The exhibit of Kellner et ses Fils comprises four automobile bodies, one on the Hotchkiss car, previously referred to; one on a smaller 4-cylinder Panhard, and two on Renault cars; besides two-horse vehicles. The Hotchkiss car body is a saloon-limousine, with side entrance. It is a very luxurious body, seating four passengers inside, besides two on the operator's seat. There are two individual folding seats, which are located close to the doors, when the latter are closed, and which clear the doors when folded up. A speaking tube is provided in addition to the usual interior appointments of card, parcel and mirror holders, and the like. The body on the Panhard car is a doctor's hansom, arranged to be operated from the inside, so that it seats only two passengers. It has a swinging front door, which just clears the dash, and front and side windows. A luggage guard is fixed to the top, and a tool and parcel box is also provided at the rear.

Of the Renault cars, one has a "touring brougham" body, with the invariable side entrance and a low folding seat for one, facing the principal inside seat. The doors have windows, and there are narrow windows just back of the doors; but behind these are sliding shutters in place of windows. The finish is in bright yellow, trimmed with red and black. The other Renault has a landau body. It is similar to the limousine just mentioned, except that behind the narrow windows back of the doors is a folding leather top, which may be thrown back for fine weather, leaving the forward part of the structure with the doors and windows untouched.

Among the minor exhibitors may be mentioned Meneveau & Cie, who show samples of bonnets, oil tanks, and lubricators; Gruvelle & Arquembourg, who show circulation pumps, carburetors, and their well-known radiators of flanged tubes bent zig-



RAMBLER TOURING CAR AND DELIVERY WAGON AT THE WORLD'S FAIR.



STAND OF FRANKLIN AIR COOLED CARS IN THE AMERICAN SECTION.

zag, and packed as closely as possible into peripheral brass casings; Malicet et Blin, who show numerous samples of gears, axles, and differentials, all of them well designed and of fine workmanship; Pozzy & Potron, makers of axles, springs and hangers, who show a quite surprising variety of fine work in this line, and Morel & Cie and Brosse & Cie, who show sprockets, wrenches, steel stampings, horns and sundries.

Lamps and headlights are shown by Du-cellier and by Bleriot, both of whom are well known in this country.

Not the least interesting exhibit is a model of the Henri Deutsch air ship, about 18 feet long. This air ship, which already has some successful flights to its credit, is propelled by a 60-horsepower Mors engine. The model shows that the two-bladed air propeller is geared down to about 8 to 1 from the motor. The air ship is trimmed for upward or downward flight by a car loaded with bags of ballast, which is rolled forward or aft on a little truck near the front end of the framework carrying the motor and propeller.

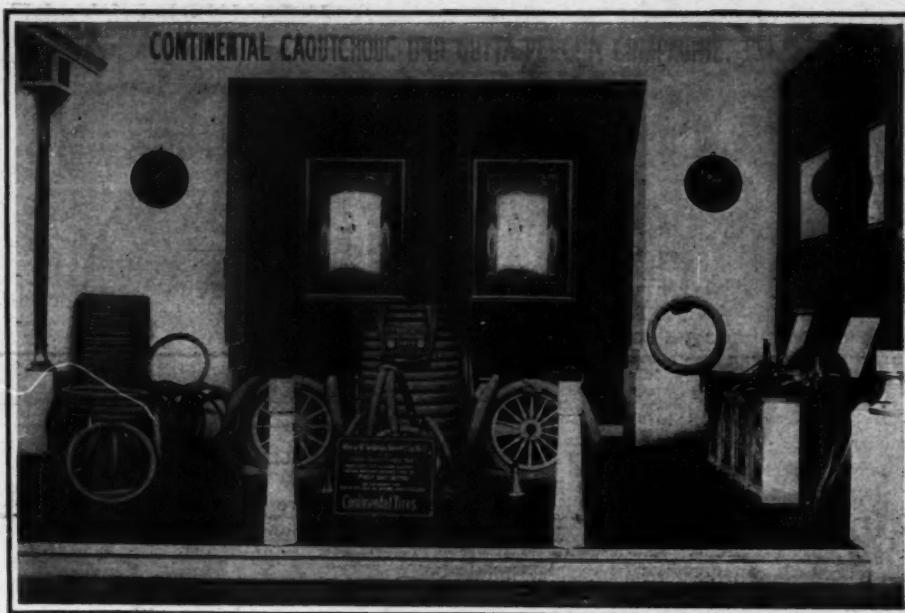
J. Rothschild et Fils show three bodies on Mors cars. Of these, one is a limousine, with a folding child's seat back to back with the operator's seat; one is a canopy top double phaeton, and the third body is a limousine with a pair of individual folding seats, which, when in use, partly cover the doors. They are made with backs and folding legs, and when not in use they fold compactly out of the way at the sides of the body, between the fixed rear seat and the doors. They are held in either position by a stiff spring. The interior appointments are very complete, including a cigar holder, hair brush and mirror holder, and the cords under the top for holding papers and small parcels.

Another builder of bodies, Th. Botiaux, shows a King of the Belgians tonneau and a side entrance double phaeton, both on Tony Huber chassis. The latter machines, which are not well known in this country, are built with both shaft and chain transmission, and with armored wood frames and brass water-jacketed motors. Another body by the same maker, a phaeton with an upholstered "spider" seat at the rear, is fitted to a light Mors car.

Several light and low-priced bodies are shown by Philippon, the builder of the De Dion bodies. Here five De Dion cars are exhibited, four of them with six or eight horsepower single-cylinder motors, and one front entrance coupé with 15-horsepower two-cylinder motor. Of the smaller cars, one is the well-known 6-horsepower Populaire, one a side-entrance coupé, one a tonneau, and one a light spider phaeton.

A collection of shop jacks and hoists of numerous styles, hardly known on this side, is shown by H.¹⁹ Edeline. Many of the hoists are partly of wood, and have hooks for catching the frame at convenient points at front or rear.

Tires are shown by five manufacturers,



ONE OF THE FEW GERMAN AUTOMOBILE EXHIBITS AT THE WORLD'S FAIR.

including, of course, Michelin. This latter concern has an attractive case, showing tire sections, tire tools, repair kits, pumps and rubber goods in general. Falconnet & Pérudeau show samples of their tire, which has a raised or thickened and flattened groove tread. Veuve Edeline shows the "Gallus" pneumatic tires, with thickened and flattened tread. Some of the "Gallus" tires are made with puncture-proof tread, this feature comprising a series of thin steel plates lying transversely of the raised and flattened tread. The ends of the plates are bent downward, over the edges of the tread, and are held in place by through pins, one pin to each plate. The tread is strengthened by radial plies of canvas vulcanized into it, and the pins pass through these. Bergougnan et Cie show the "Gaulois" pneumatics, some with smooth treads, others with treads like those of the Bailey "Won't Slip" tire, having raised buttons of rubber closely set all over the surface. The same company shows also a miscellaneous collection of rubber goods, including gloves.

In the De Dietrich exhibit is a sample of the American Samson non-skidding tire. This is a pneumatic tire shoe with a leather tread cemented on. To this tread is riveted a second or outer tread of leather about 3 in. wide, the rivets having enlarged outer heads, like flattened cones, which take practically all the wear. It is quite common in France to put a Samson tread on one of the rear or one of the front wheels, but it would seem more rational to use them on both rear wheels, to avoid slipping of one or the other wheel through the differential. James L. Breese's 40 horsepower Mercedes car was fitted with these shoes in the climb to the clouds and also in the St. Louis tour.

Electric vehicles were represented in the French section only by two Jeantaud vehicles, one a hansom cab for two passengers,

and the other a coupé. The former vehicle, instead of carrying batteries under and behind the passengers' seat, as is usual in this country, carries them in a sort of house, directly over the front axle, where it serves in lieu of a dash. The weight is thus equally distributed between the wheels, and the wheel base is longer than we are accustomed to in this country, giving a distinctly more graceful design. The controller of this vehicle is very compactly arranged under the spidery seat of the operator. The rear springs are of C-shape, and the front springs comprise two pairs of flat-leaf springs, lying transversely over the front axle. The coupé carries the batteries under and behind the operator's seat, the latter being thus separated from the rounded front of the closed portion of the body by a space of 15 inches or more. The batteries are removed by taking off a side panel to which one of the mud guards is attached. The controller is not built into the body, but is mounted in plain view in a case just behind the dash. This feature arises apparently from the French practice of specialization, as the motor, controller and other electrical apparatus are supplied by Postel-Vinay. The latter concern has an independent exhibit of electrical equipment, comprising electric motors, rear axles, with motors attached, and controllers of various types.

A number of motor cycles are shown, each differing in several respects from those driven by belts, which are not tightened by idlers, doubtless because the latter absorb too much power. Some motor cycles have flat belts, others belts whose section is that of a truncated triangle, so that they run in grooved pulleys. These belts are built up of several thicknesses of leather stitched together. Most of the motor cycles have two braking systems, a brake band acting on the rear hub, and another brake, which may act on the front or rear

wheel. Some machines have brake-shoes rubbing inside the wheel rim on each side of the spokes. An interesting feature was a flexible tube, made from helical coils of piano wire, which is used in many places to guide small wire cables, by which carburetors were regulated or brakes applied. The position of the motor showed no great approach to uniformity, but low or medium height appeared to be preferred, some motors being mounted inside the frames, others as low as possible, the crank case sometimes forming a member of the frame.

Germany is represented, as regards automobiles, by the Continental Caoutchouc and Gutta-Percha Co., which shows in a decorated booth a large number of complete tires, tire sections, repair kits and tools, and the like, and by Benz & Co., of Mannheim. The Daimler Company, unfortunately, sent no exhibit.

A most interesting feature of the Benz exhibit is one of the historic Benz three-wheelers, built in the middle eighties. It has a horizontal engine of one cylinder, and the shaft, instead of being horizontal as usual, is vertical, its weight and that of the large horizontal flywheel being supported by a thrust bearing. The apparent purpose of this singular arrangement was to avoid the gyrostatic effect of the heavy revolving mass when steering. A pair of bevel gears communicate motion to a horizontal shaft, carrying belt pulleys by which a countershaft with a sprocket pinion at each end is driven. The engine is directly over the rear axle, the single front wheel therefore carrying very little weight. The wheels have wire spokes, and the rear wheels are very large, the whole affair resembling an overgrown pedal tricycle.

Besides this historical relic, two finely finished chassis of the Benz Parsifal models

are shown, one with a 2-cylinder vertical engine of 12-horsepower, and one with a 4-cylinder 22-horsepower engine. These engines have cylinders cast in pairs, with the inlet valves mechanically operated and opposite the exhaust valves. The engine and gear case are each supported by four

cast arms springing out to meet the main frame members. Propeller shaft drive is used, and the shaft runs in a case rigid with the axle, so that only one cardan joint is used. The pressed steel frames are highly finished, and the whole presents a very fine appearance.

Lists of American and Foreign Exhibits.

A COMPLETE list of the American concerns that have been assigned space in the automobile section in the Transportation Building at the Fair follows in alphabetical order:

Badger Brass Co., Kenosha, Wis.; Baker Motor Car Co., Cleveland, O.; Brooke, M. E., Denver, Colo.; Brown, W. H., Chicago, Ill.

Cadillac Automobile Co., Detroit, Mich.; Consolidated Motor Vehicle Co., New York; Cook, W. H., Chicago, Ill.

Dayton Electrical Mfg. Co., Dayton, O.; Drew, Chas., St. Louis, Mo.; Duryea Power Co., Reading, Pa.; Dyke Automobile Supply Co., St. Louis, Mo.

Eisenhuth Horseless Vehicle Co., Middletown, Conn.; Electric Vehicle Co., Hartford, Conn.

Ford Motor Car Co., Detroit, Mich.; Franklin Mfg. Co., H. H., Syracuse, N. Y.

Gray & Davis, Amesbury, Mass.; Grout Brothers, Orange, Mass.; Graham Co., The, New York.

Haynes-Apperson Co., Kokomo, Ind.; Hendee Mfg. Co., Springfield, Mass.

Industrial Mfg. Co., St. Louis, Mo.; Jeffery Co., Thomas B., Kenosha, Wis.; Knox Automobile Co., Springfield, Mass.; Kokomo Rubber Co., Kokomo, Ind.

Lehman Brothers, New York.

Matheson Motor Car Co., Grand Rapids,

Mich.; Miami Cycle Co., Middletown, O.; Moffet Vehicle Bearing Co., Saginaw, Mich.; Motsinger Device Mfg. Co., Pendleton, Ind.

National Motor Vehicle Co., Indianapolis, Ind.

Olds Motor Works, Detroit, Mich.

Packard Motor Car Co., Detroit, Mich.; Pan-American Polish Co., East Cleveland, O.; Peerless Motor Car Co., Cleveland, O.; Pierce, George N., Buffalo, N. Y.; Pope Mfg. Co., New York.

Racine-Sattley Co., St. Louis, Mo.; Royal Motor Car Co., Cleveland, O.

Saks & Co., New York; Shelby Steel Tube Co., Pittsburg, Pa.; Sintz Gas Engine Co., Detroit, Mich.; Smith & Mabley, New York; St. Louis Motor Car Co., St. Louis, Mo.

Thomas Motor Co., E. R., Buffalo, N. Y.; Timken Roller Bearing Co., Canton, O.; Twentieth Century Mfg. Co., New York.

Veeder Mfg. Co., Hartford, Conn.; Vehicle Equipment Co., Brooklyn, N. Y.

Waltham Mfg. Co., Waltham, Mass.; White Sewing Machine Co., Cleveland, O.; Winton Motor Carriage Co., Cleveland, O.; Wireless Telegraph Co., New York; Woods Motor Vehicle Co., Chicago, Ill.

FOREIGN EXHIBITORS.

The following is the complete official list of the exhibitors of machines, chassis, accessories and sundries in the foreign sections in the Transportation Building:

Benz & Co., Mannheim; automobiles. Bergougnan & Co., Paris; tires. Billy, C., Paris; lamps. Bleriot, L., Paris; headlights, lamps. Boiron, J., Paris; spark plugs. Botiaux & Co., Levallois-Perret, Seine, near Paris; coach work. Brosse & Co., Paris; motorcycles.

Clement-Bayard, Levallois-Perret, Seine, near Paris; automobiles. Continental Caoutchouc & Gutta Percha Co., Hannover; tires.

Darracq & Co., Suresnes, Seine, near Paris; automobiles. De Dietrich & Co., Luneville; automobiles, auto boats. Dutilier, G., Paris; lamps.

Edeline, L., Puteaux, near Paris; tires.

Falconnet-Perodeaud, Paris; tires. Fouillaron, Levallois-Perret, Seine, near Paris; chassis.

Grouvelle & Arquembourg, Paris; radiators, fans and carburetors.

Jeantaud, Paris; electric carriages. Kellner & Sons, Paris; coach work.

Lamps Co., Paris; lamps. L'Aster Co., St. Denis, Seine, near Paris; motors. Le-



NIGHT SCENE AT THE ST. LOUIS EXPOSITION—ILLUMINATION OF ONE OF THE BUILDINGS.

moine, Paris; springs, shafts and forgings.

Malicet & Blin, Aubervilliers, Seine, near Paris; differential shaft-gear box, clutch cone, pinions. Meneveau & Co., Paris; lamps, headlights and bonnets. Metropole & Liberator, Pantin; motorcycles. Michelin & Co., Paris; tires. Morel, A., Revin; steel stampings.

Panhard & Levassor, Paris; automobiles. Postel-Vinay, Paris; electric motors. Poz-

zy & Potron, Paris; springs, shafts, axles and forgings.

Renault Frères, Billancourt, near Paris; automobiles. Rheims, Auscher & Co., Paris; coach work. Richard-Brasier, Paris; automobiles.

Société Mors, Paris; automobiles. Société Philippon, Neuilly-sur-Seine; bodies.

Turgan, Foy & Co., Levallois-Perret, near Paris; heavy steam truck.

Seeing the Fair by Automobile.

BY PERCY F. MEGARTEL.

TO write the experience of an automobilist at the World's Fair at the conclusion of the tour to St. Louis necessitated the possession of a permit that would permit the entrance of our car to the grounds and its use on the various highways and by-ways within. This was a more difficult matter than to secure admission on the day of the big automobile parade in the grounds, when permits were distributed broadcast. When the purpose of the trip was explained to the proper officials, however, a permit was granted to the representative of THE AUTOMOBILE of a most sweeping character, allowing the operation of the car on any thoroughfare upon signing an agreement to hold the exposition management harmless in case of any mishap. Our confidence in the *Pathfinder* and in our ability to keep out of harm's way after several thousand miles of touring was such that we readily signed the agreement, and thus armed against the verbal assaults of vigilant Jefferson guards we drove into the State Buildings entrance, and then by the most direct route headed for the Transportation Building.

In our trip through the grounds we were struck with the unusual number of electric observation automobiles in use on the thoroughfares and the crowded appearance of each. Twenty-five cents is charged for a trip about the grounds, and as each building or place of interest is passed the operator stands up in his seat and cries out the name of the structure, adding any information he may have on the subject. People from the rural districts who have never before ridden in an automobile cling to their seats in these observation cars the greater part of the day.

Another important use that the automobile has been put to inside the grounds is the carrying of the United States mail. Any one who has never visited the exposition, which covers as much ground as the Columbian Exposition at Chicago, the Paris Exposition and the Pan-American Exposition all taken together, can have little idea what a task it is to gather and distribute all the mail that is received. There are thousands of employees and tens of thousands of visitors who have their mail sent in the care of their State building or of some friend who has an exhibit somewhere on the grounds.

It is interesting to note the various means

of passenger conveyance in use at the Fair, some purely for novelty and enjoyment, and many others for the serious purpose of enabling the visitor to cover a greater distance than one could afoot in a given time. There are camels and elephants to ride, wheeled chairs pushed by careful guides, a miniature steam railroad train, boats both electric and gasoline, an air ship, the aforementioned electric automobiles, sedan chairs of the high chiefs in the "Streets of India," horses in the "Wild West," diminutive burros or donkeys in the "Oriental Streets," the great Ferris wheel, a riding ostrich in the "Ostrich Farm," the high two-wheeled vehicles so well known in "Fair Japan," gondolas on the lagoon, an electric trolley road running entirely around the grounds, clumsy but swift-moving scows on the "Shoot the Chutes," and still other means of riding slowly or swiftly as one may desire.

In taking an automobile into the grounds it is necessary to enter through the "State Buildings Entrance," at the gate of which you make out a form of permit and pay \$1. Only owners of machines can sign the permits, no chauffeurs or parties renting machines being eligible to admission with an automobile. A binding agreement is signed, making the owner responsible for all accidents, and it is necessary to fill in the number of your machine and license. The privilege of taking your auto in the grounds, however, is worth all this trouble many times over. Others in the party have, of course, to pay the usual admission.

Any one who attends the Fair with the purpose of seeing it all in one, two or three days will find out that he has undertaken a pretty difficult task. The grounds are 9,500 feet long and 6,000 feet from north to south. This means about 1,240 acres.

In running our machine around the grounds we were struck by two things that always loom up prominently at world's fairs—the great number of strange foreign people, either spectators or connected with exhibits and places of amusement in the grounds, and the general tired feeling that seemed to possess every one. Men, women and children were found sitting on the steps of buildings, on railings, barrels or other rubbish, the grassy plots, and even on the floor of some of the buildings where there was less than the usual amount

of traffic. I remember it was the same at the Pan-American Exposition and also at the Columbian Exposition, and was thankful that we possessed an automobile in which to travel from building to building, and, incidentally, when tired of indoor sightseeing, take an occasional whirl around the outer grounds. It proved very restful to all of our party and enabled us to see twice as much of the fair in the week we were there as would ordinarily be covered by persons walking.

All the buildings close at 6 o'clock in the evening, and then a "hike down the Pike" is in order. The St. Louis Fair Commissioners, thinking the term "Midway" as applied at the Chicago world's fair of '93 a trifle out of date, substituted the word "Pike." All tongues, creeds and customs are in vogue along this variegated street.

To take an automobile on the sacred Pike was something very much out of the usual, and not only needed the most careful driving after you entered the Pike, but necessitated a great amount of effort before in order to get a special permit—we only succeeding with the understanding that we were to take photographs for THE AUTOMOBILE and were to be responsible for all accidents caused.

The first place visited was the Hagenbeck Zoo. Here we had to observe the utmost caution, as the noise of an automobile was liable to excite the animals, causing trouble for the trainers when they attempted to put them through their tricks. We had no sooner entered the portals than our way was disputed by a half-grown elephant who thought we had no business on that part of the Pike at least. He lowered his head and came for our machine with fire in his eye. I thought I saw the finish of the *Pathfinder*, and am free to confess I jumped out. The trainer, however, got his iron to work about that time, and when the hook had entered the delicate ear of the little fellow (he weighed a ton) he was once more peaceful, although he insisted upon smelling the automobile all over, examining the searchlight and passing his trunk over the two extra Goodriches we had strapped on the hurricane deck.

After getting safely past the elephant, we ran around to the back of the Zoo, and here endeavored to get a photograph of some of the animals backed up against the machine, the animals, of course, inside a wire enclosure. The polar bears would have none of it, and retreated to the further side of the big den, nor could any amount of coaxing induce them to come down from the top of their plaster icebergs. The seals did not mind the machine very much, but they did dislike to get out of the water, and went scampering back every time they were poked into position for a photograph. The pelicans and other birds didn't like the automobiles, and would not remain still long enough for us to get a picture, flapping their wings and stretching their necks in signs of displeasure.

Our next visit was to the ostrich farm,

where the feather farmer admitted us through a rear gate to the enclosure, where the giant birds were loose. These birds seemed to have little use for an automobile, for they went running around the enclosure at a thirty-mile-an-hour gait. An Australian bushman then came to our aid. This queer creature was attired almost entirely in ostrich feathers, and while he kept an anxious eye on the feet of the big birds he ran among, he soon rounded them up so that we could take a good snap shot, although every ostrich was craning his or her neck up in great terror, and one big fellow managing to separate himself from the main flock ran directly toward the camera. I thought it was all up with the camera at least, but just as he was almost upon me he suddenly turned and ran back to the other birds at full speed. The manager of the farm then slipped a dark bag over the head of one of the birds. With the light shut off the bird darted here and there, until finally it allowed itself to be led away by the neck. Bringing the bird up to the rail fence, the bushman suddenly jumped from the top rail and alighted squarely on its back. The manager then drew off the black bag and the bird gave that bushman such an exhibition of bucking as no piebald mustang ever equalled. The rider was game, however, and stuck on, holding one wing with each hand, while his knees were tucked in under the wings.

From the ostrich farm we ran into "Mysterious Asia," where the automobile created quite a confusion among camels, donkeys, dancing girls, and excited booth keepers. We loaded the machine down with foreigners for a picture, which went all very well until we asked them to get out. Then they wouldn't have it that way. No, nothing would do but that we must give them a ride. Never had the *Pathfinder* before carried such a motley crowd—dancing girls, donkey boys and camel men piled in, and up the Pike we went at a pretty good speed. It was their first automobile ride, and when we opened the muffler we lost half our load, and would no doubt have lost it all if the tonneau door had not been securely fastened. They were all pretty badly frightened at the sound of the explosions.

From Asia we ran into Colonel Cumming's "Wild West," across the Pike, and there we loaded up with Indians. Redskins from various nations, and some without any nation, piled in and were photographed. This show is one of the largest on the Pike, and comprises several hundred cowboys, Indians, rough riders and soldiers. Roping steers, an attack on the settler's cabin, the hold-up of the Denver stage coach, riding bucking bronchos and wild cattle, running the gauntlet, and similar scenes as pictured in our early histories of the West made up the program for the afternoon's performance.

Another visit that proved very instructive was that made at the Esquimaux vil-

lage. This exhibit was an improvement on the Esquimaux exhibit at the Columbian Exposition at Chicago. There are more men, women, dogs, houses and curiosities than ever. The performance consisted of: An Esquimaux stalking a seal; an exhibition of the marvelous dexterity of the natives in using that most formidable of arctic weapons, the deadly walrus hide whip; an exhibition of native dog driving, in which six dogs are driven tandem attached to a sled; the medicine man curing or killing a sick native, the method employed being to frighten the patient into forgetting his sickness; an exhibition on the lagoon in a native skin canoe, and several native dances. Little Nancy Columbia, the famous little Esquimaux girl who was born at the Chicago fair, was very much in evidence, and is indeed a beautiful and talented child of eleven.

Another show on the Pike which is deserving of special mention is the "Battle of Santiago" and great naval display. There are twenty-eight miniature war vessels, ranging in size from ten to twenty-one feet, and all are exact reproductions of the United States and Spanish vessels. Each

ship is run by electricity, and is controlled by an operator who sits inside the boat unseen by the spectators. The naval show is given on a lake two blocks in area. Actual maneuvering of a fleet may be seen, blowing up ships, encounter with forts, submarine explosions, and numerous thrilling and exciting scenes of real warfare. The program includes reproductions of the naval battles of Manila, Santiago, Port Arthur and other famous sea engagements. This show is always well attended and deserves a visit.

Fair Japan portrays the life in that far away island, and the Japanese village is a very interesting sight. It is supposed to represent a section from the old Imperial gardens at Tokio, and is filled with very old trees trained in fantastic shapes, the Temple of Nikko, all the life of a street in Asakusa, Geisha girls with their dances, and other native sights and scenes.

These are only a few of the things to be seen on the famous Pike and in the several hundred buildings that go toward making the St. Louis Exposition of 1904 by far the biggest World's Fair this country or any other has ever witnessed.

Women's Views of the Automobile Exhibit.

By MARTHA L. ROOT.

WOMEN who visit the World's Fair are interested in many special features of the Exposition. The women motorists go first to the automobile show in the Transportation Building, but for the most part they pass the American exhibits and spend most of their time in the foreign sections. They like the splendid finish of the French cars, and their multiplicity of accessories.

"Look at that galvanized iron piece at the rear of this car, with special leather straps to hold two steamer trunks. I like that, and it doesn't take much space," said a Chicago woman motorist while visiting the French section. Her opinion was quite in agreement with the opinions expressed by scores of women motorists who have noted the little conveniences for travel that seem to have been carefully considered by the foreign constructors. Another woman commented upon the side entrance and the unique attachment on several such cars for holding an extra tire. All the ladies liked a \$6,000 French car with red body and victoria top, which was completely equipped inside with cases a veil, and collapsible pockets for odds and for toilet articles, a small receptacle for ends.

"Some women like to sit in a machine and look pretty, but I want to take my hat off, and do my own driving. I like these French cars, but the mechanism is so complicated, I should think one would need a chauffeur for each different make of carriage. The foreign machine is wonderfully fine, but what's the use of so many gears?"

Give me a simple American motor that I can manage myself," this was the statement of a woman who was visiting the French section, and which gave voice to a different point of view.

An Arizona woman looked the display over carefully, and then remarked that one thing the automobiles needed was a receptacle large enough to hold two iron tripods and two rods: "Out West, we like to carry a little lunch with us, and do so, too," she said. "You know we can always pick up sticks anywhere, so we set up the tripods, put two rods across, and make coffee and cook bacon and eggs. They taste good, and we wonder why manufacturers don't put receptacles for these accessories into the cars."

Another woman liked a de Dietrich car best, because it had a buffet and a writing-table that could be converted into a dining-table as well. There were electric buttons with signs in French for the chauffeur. When she expressed a desire for this particular car, her husband remarked: "You'd never have reached St. Louis in a machine like that. Look at the low body. You women see the paint, brass trimmings, and collapsible pockets, as you call them; but a man looks for a serviceable car for American highways. Come back to the American section and I'll show you something better for us." So a bevy of women companions started back to see the American machines.

In the American section women will frequently be found discussing the question of motoring costumes in front of the booth

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where auto clothing is shown. One well-known Western woman liked the three-quarters, half-fitting khaki cloth coats made with hoods: "I have had more comfort out of my motoring coat of this soldier cloth than with any I have ever tried. They are very inexpensive, can be made as easily as a wrapper, and laundered up in an hour's time at any hotel. They button and the buttons are covered with the same material. The old-fashioned hood keeps the hair perfectly clean. I think they look very businesslike and appropriate."

All the women visitors agree that the automobile veils as shown were very expensive. One Chicago woman said she made her own. She has a dozen of them all in colors of chiffon. Each veil requires one and one-half yards of material. It is gathered in a ring, then slit up the centre to within a distance of 18 inches and hemmed at the ends. An excellent veil for long-distance trips, said another motorist, was one of pongee gathered into a circular band at the top, slit down the front and gathered into a draw-string at the throat. Two inches of silk are left for a ruffle at the bottom of the veil; this ruffle throws the dust away from the neck and keeps one's collar clean.

A Boston motorist expressed the opinion that with a shirt-waist motoring suit it is an excellent plan to have an extra shirt-waist of the same material. It can be packed in the suit case, and after the day's run, when one washes for dinner, it refreshes one to put on a clean waist with clean turnover collars. She also advocated a silk motoring coat of the same material as the dress.

A visitor from St. Paul remarked upon the light tan coats in the booth. She thinks the lighter the material in color the less it shows the dust and dirt. The booth has a good variety of motoring coats, caps, and goggles. Women motorists do not agree upon the matter of caps. Some would wear nothing else, others taboo them. Several ladies have designed auto hats. A Pittsburg motorist wears a linen auto hat made upon a wire frame. She designed it herself. The covering can be taken off, laundered, and put on again. The jaunty millinery is tied with wide linen bows under the chin.

Among the exhibits outside the automobile show which the ladies in the St. Louis Fair found of special interest was the Oldbrick rooms in the Varied Industries palace. These rooms have a new method of decoration; the pictures are built into the walls rather than appearing in frames. The wall coverings are different from any seen heretofore. The building looks as if it might be the home of a wealthy man of any nationality, who, being possessed of an artistic temperament, had designed his home in a new and original fashion. The ladies said it lacked one feature—an automobile in the court!

Other places of interest visited by the women were the World's Fair gardens, the

foreign buildings, Japanese work in the Varied Industries, and also the Rookwood pottery in the same building. In the Liberal Arts palace everybody wanted to see the Cloisonne vases and hear the daily lectures upon them. All the ladies liked the art galleries, and said the pictures had a much better environment here than those at the Chicago Exposition eleven years ago. They are not so crowded, and each room has a harmonious setting of wall coverings and carpets. A number of women visited the model playground and all went to the baby incubator on the Pike. A few were interested in the wireless telegraphy demonstrations at the De Forest Tower, and others went to the radium lectures in the Government Building.

• However, no matter where else the women automobileists went, they managed to spend the best part of the mornings in the Transportation Building at the automobile show.

FREE ENTRY OF FOREIGN CARS

Conditions Under Which They May Be Imported Temporarily and Permanently.

Special Correspondence.

WASHINGTON, D. C., Sept. 12.—The Collector of Customs at New York has sent to the Treasury Department a number of inquiries in regard to the free entry of automobiles imported into the United States. Assistant Secretary Keep has answered them substantially as follows:

Automobiles of foreign manufacture brought to this country for touring purposes, whether by foreigners or residents of the United States, and whether accompanying the owners or not, if to be actually used by them in this country, are entitled to free entry under bond, for a stay of three months, under the provisions of the Department's circular of June 20, 1902.

Under the provisions of Treasury decision of March 17, 1900, automobiles are classed as household effects, if used as such for the period prescribed by law. Automobiles used in business pursuits are not exempt from duty, as, under the provisions of paragraph 504 of the tariff act of July 24, 1897, the article must be a part of the household economy. In several cases decided by the Treasury Department household effects are defined as "articles which pertain to a person as a householder or to a family as a household, and do not include articles used in professional or business pursuits."

Automobiles used abroad as household effects as above for a period of one year or more, whether consecutively or not, and whether not the one year of use abroad immediately precedes the importation, are free of duty upon the filing of the usual oath.

Free entry of an automobile is accorded only to the actual automobile used by the owner for one year or more, and cannot be allowed in the case of an exchanged machine which has not been used by the owner

for that period. Automobiles are free of duty if used abroad for one year, although a period of a year or more may have elapsed since such use.

Automobiles, to be free of duty as household effects, must have been used abroad for a period of one year or more by the owner or his family, whether driven by a chauffeur in his employ or not, but the use of an automobile by a chauffeur or friend unconnected with the owner or his family does not meet the requirements of the law.

Collector Stranahan will be governed accordingly.

Autos in the British Isles.

The number of automobiles and motorcycles registered in the British Isles up to midsummer, 1904, and also the number of driving licenses issued are shown in the following table:

	Motor- Autos	Driving cycles	Licenses
England	15,827	18,291	45,987
Wales	476	754	1,460
Scotland	1,373	1,252	3,636
Ireland	664	1,224	2,086
Totals	18,340	21,521	53,169

It will be noticed that the number of driving licenses is much larger than the total number of automobiles and motorcycles, indicating that a great many persons who do not own cars have taken out driving licenses. A large number of the extra licenses are doubtless held by chauffeurs. Another interesting point is the number of motorcycles registered, these far exceeding the automobiles numerically. This brings the motorcycle into prominence as the poor man's automobile, for in the poorer countries—Ireland and Wales—motorcycles are almost twice as numerous as automobiles, while in England, where the average of wealth is doubtless higher, there is less difference in the figures. In Scotland, however, the automobile has a little the best of it, probably because a large proportion of automobile owners in that country are Englishmen of wealth, to whom a high price is of small moment as against luxury. The frugal Scotch are not distinguishing themselves by their eagerness to take up the new mode of locomotion.

MacComb's Dam Bridge at Midnight.

I stood on the bridge at midnight
As the clocks were striking the hour,
And I wondered what I had taken,
A fizz or a whisky sour.

I saw the bright reflection
Of the Harlem under me,
But the things I beheld above it!
I had never thought to see.

Scarce had the distant chiming
Tolled off the middle of night,
When there started a strange procession
That froze my wondering sight.

First one, and then another,
Then two and three swept by,
And then they came at such a rate
They dazzled my watching eye.

And some were still as phantoms,
That come when the night grows cold,
And some shook the bridge like giants
That strode in the days of old.

New York Times.

Vanderbilt Cup Race Entries Close.

Eighteen Machines Are Entered—White Steam Cars Withdrawn—N. Y. City's Permission to Use Streets Granted.

THE last possible obstruction to the holding of the Vanderbilt Cup Race, barring accidents or unforeseen occurrences, has been removed by the granting of permission, by the New York City Board of Aldermen, for the use of that part of the course which lies within the New York city limits. This includes the apex of the triangle at Queens. Though no difficulty was anticipated in this direction, those upon whom the responsibility rested breathed a sigh of relief when the last link in the chain was completed.

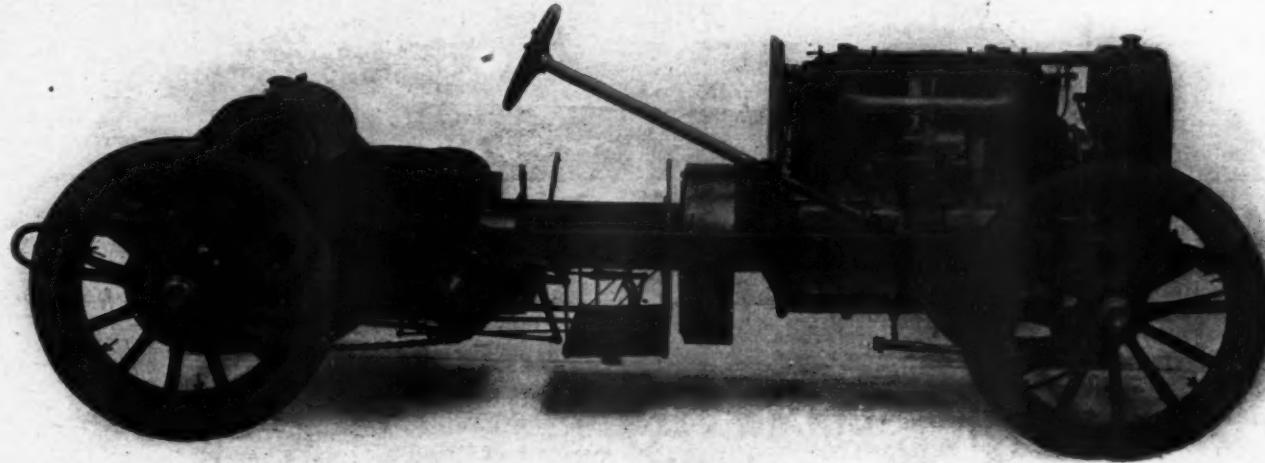
As soon as it was known that all the seats in the grandstand originally planned would be subscribed for, preparations were

Bethpage Turnpike; but it is not at all probable that this will be done, as the work of improving this part of the circuit is well in hand, and when this is completed the worst features will have been eliminated.

Some doubt has been expressed concerning the reported horsepower of the Renault car entered by W. Gould Brokaw, as the Renault people, so far as known, have never built cars of 90-horsepower. Mr. Brokaw himself, however, refers to the car as having a 90-horsepower motor. The car itself is not yet in this country, and is not likely to arrive for at least two weeks.

The de Dietrich machine which has been entered by Mr. Jarrige is the identical car

postmark, which showed that it had been mailed the day before. The delay in getting the entry in was due in a large measure to doubt as to whether the car could be kept within the weight limit of 2,204 pounds. This, however, has been done, and there is a safe margin left. The machine differs in a number of respects from the other cars entered. Although it is essentially a racing car, it has few "freak" features. The motor is a four-cylinder, 75-horsepower engine similar in every respect to that used in the auto-boat *Vingt-et-Un*. The bore is 6 1-2 inches and the stroke 6 3-4 inches. All valves are mechanically operated. The cylinders are cast in pairs, and the exhaust from each pair is carried out through a single short pipe projecting straight out through the aluminum hood. One carburetor supplies all four cylinders, and one spark coil feeds the four plugs through a distributor. A combined tank and cellular radiator, a centrifugal pump driven from



SMITH & MABLEY 75-HORSEPOWER SIMPLEX ENTERED IN VANDERBILT CUP RACE BY FRANK CROKER.

made for the erection of an addition doubling the grandstand accommodations! There will be eighty boxes having a capacity of six persons each, and single seats for 800 spectators, a total capacity, in both stands, for 1,200 persons. Among other distinguished spectators, the Italian Ambassador will occupy a box and by his presence at least will encourage the drivers of the Italian cars to victory.

A recent development in the plans of the A. A. A. Racing Committee is the decision to oil the entire course. This was arranged after a consultation with Mr. Vanderbilt, who thought it advisable to leave absolutely nothing undone that could conduce to the safety of the racers and spectators. The oiling will cost in the neighborhood of \$5,000, and will make the roads perfectly safe for fast driving, so far as the raising of dust clouds by the cars is concerned.

There has been some speculation regarding the possibility of cutting out that part of the course which includes the turn from the Hicksville-Massapequa road into the

driven by Gabriel in the French elimination trials for the Gordon Bennett race.

Entries for the first great American road race came in rapidly during the last few days before the list closed, and there are now eighteen machines scheduled to face the starter. The French entries lead, in point of numbers, with six cars. Germany and the United States are to be represented by five cars each, and Italy by two 90-horsepower Fiat racers. Of the late entries two are 60-horsepower Mercedes cars belonging to E. R. Thomas, of New York, and Isadore Wormser; an 80-horsepower de Dietrich, entered by Mr. Jarrige, New York agent for this make; the 90-horsepower Renault, which W. G. Brokaw has sent his driver, M. G. Bernin, to France to bring over here; a second four-cylinder Pope-Toledo; the Packard *Gray Wolf*, and the Smith & Mabley Simplex racer just turned over to its purchaser, Frank Croker, son of Richard Croker, ex-Tammany boss.

The entry of the Simplex, which will be driven by its owner, was received after the list had closed, and was saved only by the

the secondary shaft by gears, and a fan behind the radiator comprise the cooling system.

The frame of the car is of pressed steel of channel form, tapered at the ends. The cross members are also of channel steel, and these are drilled out as much as possible to get rid of superfluous metal. The axles are of steel of I-section, very strong, and are dropped considerably to bring all of the heavy parts as low as possible. In this way the center of gravity has been brought very low, while plenty of clearance above the road is left. The steering knuckles are particularly strong, although not so heavy as they appear, being bored out as much as safety would permit. Wood artillery wheels are used, and the Michelin tires on the rear wheels are 920 by 120 millimeters and on the front wheels 910 by 90 millimeters. The wheelbase is 106 1-2 inches and the tread standard. All wheels run on ball bearings—in fact, ball bearings are used throughout the car except in the motor, in which the bearings are plain. Almost all shafts are hollow.

The transmission and differential are enclosed in the same casing. The four forward speeds are controlled by a single lever on the right, while the reverse is thrown in by a lever on the left. The reversing gear locks automatically so that it cannot be meshed unless the forward gears are clear, thus obviating the possibility of any mistakes in this direction. A pedal-operated hand-brake acts on the differential and a lever operates emergency brakes on the rear hubs in the usual way. A second pedal operates the clutch, which is of the internal type, the cone on the transmission shaft moving backwards, or away from the face of the wheel, to come into engagement. Thus the thrust is almost eliminated while the clutch is engaged, though present to some extent when it is out. The spark and throttle levers are located at the top of the steering wheel, which is inclined at a sharp angle from

The feeling of gratification over the entry of seven American cars has been modified by the advices from Cleveland that the two White steam racers will not be completed in time to take part in the race. This is the more disappointing because the cars were absolutely unknown quantities, and their appearance was being awaited with a great deal of interest. The idea of steam automobiles competing on even terms with the best representatives of the gasoline class over a 300-mile course that would test them to the utmost, caused a great deal of speculation. The White cars were the first to be entered, having been placed on the list by telegraph the day the list opened. The White company does not care to enter the cars used for racing last year, and there will, therefore, be no steamers in the Vanderbilt Cup Race.

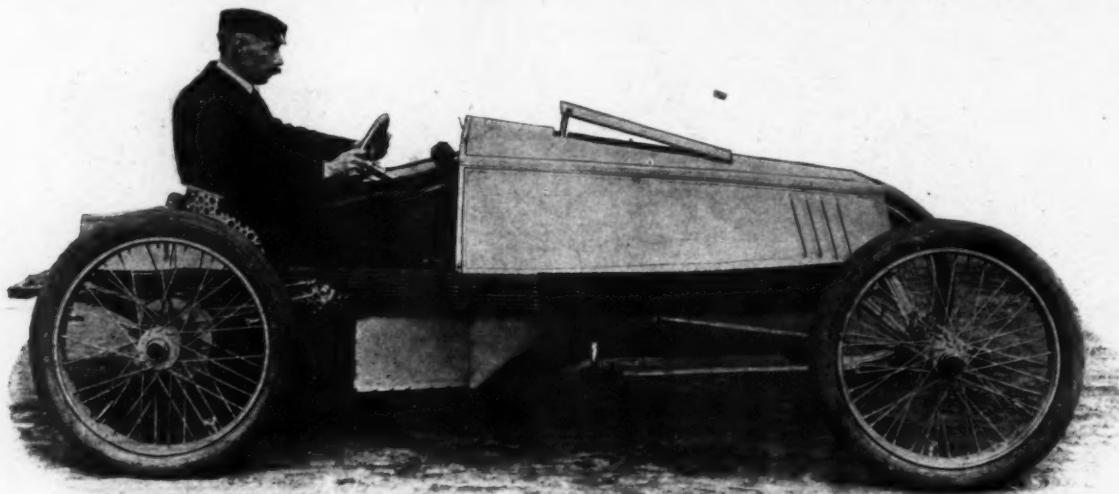
The combined horsepower of the remaining cars entered reaches the surprising

odd miles will be close to a mile a minute, the slowing down for turns and controls preventing the possibility of a higher rate.

Following is a list of the cars entered. Some changes may be made in the drivers, but the list as it stands will, in the main, be found correct:

Dr. Danforth had a horseless nightmare recently. He dreamed that Amory Had-sall's auto had run him down and was sitting on him. When he awoke he discovered that his mahogany folding bed had closed up on him during his restless slumbers.—*Genoa (Ill.) Journal*.

At a recent meeting of the Massachusetts State Board of Highway Commissioners to consider a petition from the Winthrop, Mass., selectmen that automobiles be barred from the boulevards along the reservation at Winthrop, the board decided the



CHARLES SCHMIDT AND PACKARD 24-30-HORSEPOWER RACER, "GRAY WOLF."

the horizontal, as usual in extreme racing cars. The levers are connected to the throttle and spark timer through Bowden wires, which permit corners to be turned without the use of bell-crank or similar devices.

A peculiarity of this car, and one that will doubtless be appreciated by the driver and his mechanician before the long race is over, is that the occupants will sit with their feet in a sort of rectangular well, thus being in a comfortable position and at the same time very low. The motor is said to be sufficiently powerful to accelerate the car with great rapidity, and the gearing is of extraordinary strength, so that all the power can be transmitted without danger of breakage. The top speed of the car, when geared for the race, will probably be about ninety miles an hour, and the construction is such that the changing of gears is a simple matter. Owing to the turns in the cup course, it will be necessary for the racers to slow down frequently, and a car that can accelerate with promptness will stand an excellent chance of making a good showing.

total of 1,480. Six machines are rated at 90-horsepower each, while the lowest is the 24-30-horsepower *Gray Wolf*. The average of the machines entered is a trifle more than 82-horsepower. It is calculated by experts that the average speed for the 300

COMPLETE LIST OF ENTRIES

Country.	Car.	H.P.	Driver.	Entered by
United States....	Pope-Toledo	60	A. C. Webb.....	Col. A. A. Pope
	Pope-Toledo	60	H. H. Lyttle.....	Col. A. A. Pope
	Gray Wolf.....	30	Charles Schmidt..	Packard Motor Car Co.
	S. & M. Simplex....	75	Frank Croker.....	Frank Croker
	Royal Tourist.....	35	Joseph Tracy....	C. A. Duerr
France.....	Panhard	90	Tart.....	Panhard & Levassor
	Panhard	90	Heath.....	Panhard & Levassor
	Panhard	90	Panhard & Levassor
	Clement-Bayard	80	Albert Clement...	Albert Clement
	Renault	90	M. G. Bernin.....	W. G. Brokaw
	De Dietrich.....	80	L. Regan.....	R. E. Jarridge
Germany.....	Mercedes	60	S. B. Stevens, Jr..	S. B. Stevens, Jr.
	Mercedes	60	E. E. Hawley.....	E. R. Thomas
	Mercedes	60	Carl Mensel.....	George A. Arents
	Mercedes	60	Werner	Clarence Gray Dinsmore
	Mercedes	60	Isadore Wormser
Italy.....	F. I. A. T.....	90	William Wallace.	William Wallace
	F. I. A. T.....	90	Paul Sartori.....	Alfred G. Vanderbilt

danger and inconvenience caused by automobiles on the boulevards was not so apparent as the selectmen seemed to believe. The board took no action on the petition, and the machines may still run along the State reservation.

FOR VANDERBILT CUP RACE

Country.	Car.	H.P.	Driver.	Entered by
United States....	Pope-Toledo	60	A. C. Webb.....	Col. A. A. Pope
	Pope-Toledo	60	H. H. Lyttle.....	Col. A. A. Pope
	Gray Wolf.....	30	Charles Schmidt..	Packard Motor Car Co.
	S. & M. Simplex....	75	Frank Croker.....	Frank Croker
	Royal Tourist.....	35	Joseph Tracy....	C. A. Duerr
France.....	Panhard	90	Tart.....	Panhard & Levassor
	Panhard	90	Heath.....	Panhard & Levassor
	Panhard	90	Panhard & Levassor
	Clement-Bayard	80	Albert Clement...	Albert Clement
	Renault	90	M. G. Bernin.....	W. G. Brokaw
	De Dietrich.....	80	L. Regan.....	R. E. Jarridge
Germany.....	Mercedes	60	S. B. Stevens, Jr..	S. B. Stevens, Jr.
	Mercedes	60	E. E. Hawley.....	E. R. Thomas
	Mercedes	60	Carl Mensel.....	George A. Arents
	Mercedes	60	Werner	Clarence Gray Dinsmore
	Mercedes	60	Isadore Wormser
Italy.....	F. I. A. T.....	90	William Wallace.	William Wallace
	F. I. A. T.....	90	Paul Sartori.....	Alfred G. Vanderbilt



POPE-TOLEDO 60-HORSEPOWER VANDERBILT CUP RACER, WITH A. C. WEBB AT THE WHEEL.



America—Joseph Tracy in the Royal Tourist Vanderbilt Cup Car.

France—Albert Clement at the Wheel of the Clement-Bayard.

CRACK DRIVERS WHO WILL PILOT AMERICAN AND FRENCH CARS IN THE VANDERBILT CUP RACE ON OCTOBER 8.

Problem of the Auto Boat.—II.*

Elements of Successful Hull Design Simply Discussed for the Benefit of Intending Purchasers and Users.

BY WILLIAM F. DURAND.

CONDITIONS AFFECTING THE FORM.

WE shall now turn to some conditions affecting the form of the boat, first under water and second above.

The underwater form at the bow should represent a gently tapering wedge with edge vertical and cutwater sharp. The angle of the wedge will be determined largely by the length to beam ratio, but on this ratio the angle of entrance should be made as easy as possible, advantage being taken in most modern designs of the flat stern to be discussed at a later point, and which permits of carrying the maximum breadth much nearer the stern, and thereby obtaining finer angles of entrance, than with the maximum breadth more nearly amidships.

As between the so-called *U* and *V* forms for bow sections, the former are to be recommended as the better so far as wave-making disturbance is concerned, while they result also in a less pronounced lift at the bow itself and hence in a less pronounced disturbance in the trim of the boat at operating speeds. The general lifting of the boat bodily at the highest speeds and the decreased resistance which this is believed to give may be better determined by a suitable adjustment of the form somewhat farther aft, and the lifting effect thus located will produce a less pronounced disturbance on the trim, and thus leave the boat more nearly in normal trim at operating speeds.

CUTWATER SHOULD BE VERTICAL.

In particular it is desirable that the cutwater shall be nearly vertical and not rounded off, or cut away too much at the bottom. The draft at the bow should be somewhat less than farther aft, but at the same time sufficient to insure the immersion of the cutwater under any lift of the bow or dropping of the stern which the boat may experience at top speed. The obvious purpose of this caution is to avoid a decrease of the effective length of the boat on the water line when at top speed. Of what service is 40 feet in length if the boat at top speed projects her nose out of water and due to the form of bow runs actually on a 30 or 35-foot water line? This is a serious fault in some of the recent designs for auto boats, and the point is one to which the designer will do well to pay special attention.

For the after body the prevailing form for the immersed part of the boat shows a gradually tapering wedge with edge at the stern, horizontal, and at the surface of the water. In other words if we should suppose the upper part of the boat cut off by a plane at the surface of the water, the remaining part below water would show such a wedge-shaped form with edge at the sur-

face at the stern, and base joining the forebody which, as already noted, shows in a general way a like wedge form with vertical edge at the bow.

FORM OF THE STERN.

The "points" of this form of stern are as follows: First, it permits of placing the greatest breadth at a point well aft of amidships, and thus of obtaining finer horizontal or water plane angles at the bow.

Second, it places the surface of the boat at the stern in a position to find support from the water pressures in that locality, and thus to better resist the tendency to settle at the stern so commonly shown by small boats at high speeds and which so seriously disturbs their running trim.

Third, on the same over all dimensions it gives more water plane area than the common ship formed stern, and thus more stability and more safety.

Fourth, for the same reason the part of the boat above water may be made much more roomy at the stern, thus adding to the comfort and general serviceability of the boat.

In connection with this type of stern reference may be made to the so-called tetrahedral form of boat which has been proposed and used in some trial designs, and in which these principles are carried to their full extreme by placing the greatest breadth directly at the stern and thus assimilating in a general way the form of the underwater body to a tetrahedron or four-faced solid, of which one face is horizontal at the water surface and shows a triangular form of water plane with point at the bow while a second triangle dips gently from the surface at the stern and shows its apex at the bottom of the stem piece. Two others are vertical and show their apexes at the stern at the surface and join their bases at the bow. This is the type form, rounded on the lower edges and modified in accordance with structural necessities.

It can not be said at the present time that there is sufficient evidence regarding this type of form to justify any assumption of superiority over more common forms in which the principles involved are not carried to the same extreme, and in which the widest section is somewhat forward of the stern, with a keel line sloping upward from a point more nearly amidships, rather than from the foot of the cutwater.

ALTERATION OF WATER LINE LENGTH.

Mention may also be made at this point of the tendency shown in some recent designs to so adjust the form at the stern that the water line length when at rest shall be considerably less than when underway. This is a matter which has chief rela-

tion to the subject of the classing of boats, and may result in the location of a boat in a lower class than that in which she might belong if measured when running at a moderately high rate of speed. There is no difficulty, of course, in arranging a long overhang of stern which will just clear the water when at rest, and which will therefore not come into the water line measurement, but which is expected to come down to the surface of the water when under way, and thus form a part of the effective length of the boat. This is a matter largely of jockeying for points, and has nothing whatever to do with the scientific design of a boat. The length for rating should be determined by the water line when under way, rather than when at rest, and this would do away with the temptation to resort to such methods of gaining an advantage in the matter of rating. In any event and quite aside from the question of rating, the form at the stern should be so adjusted that with a reasonable and convenient location of machinery and other weights and at the top speed, the round of the lower knuckle or under surface of the boat at the stern will just rest nicely on the surface and without tendency to settle lower and plow a furrow through the water, thus exercising a considerable drag at this point and increasing the resistance of the boat.

In a following article the influence of the form above water will be considered together with some questions regarding the adjustment of the trim, and other minor points which may properly enter into the problem of high speed with boats of this character.

(To be continued.)

MISCELLANEOUS NEWS NOTES.

Three farmers of Mills County, Ia., now own and drive automobiles.

The automobile formerly used by the late Colonel Henry, widely known through his connection with the Dreyfus trials in France, is reported to be the property now of Mrs. William N. Thomas, of Austin, Ill., who uses the car for the purpose of demonstrating an automobile speed indicator that automatically sounds an alarm when the machine exceeds a certain speed. Efforts are being made to have an ordinance passed in Chicago requiring the use of the device upon the machines of that city.

Postmaster F. M. Fisher, of Paducah, Ky., accompanied by his son Harold, have just completed an automobile trip to Portageville, Mo., and return, a distance of about 250 miles. It was the first automobile to be seen in western Tennessee, and caused no little excitement among the natives. Though the roads were exceedingly rough, no serious mishaps occurred and the machine completed the trip in good condition. A stop for a day and night was made to enjoy the fishing at Reelfoot Lake, and other stops were made at Hickman, Ky., and Tiptonville, Tenn.

*Continued from Page 256, issue of Sept. 3, 1904.

New Records Made at Providence.

Figures in Light and Heavy Gasoline and Steam Car Classes Demolished by Kulick, Basle and Ross.

Special Correspondence.

PROVIDENCE, Sept. 10.—New world's track records, for both gasoline and steam cars, were made at the races of the Rhode Island Automobile Club at Narragansett Park track to-day. Barney Oldfield's records from two miles up to ten were cut down by the 90-horsepower Mercedes owned by H. L. Bowden and driven by his chauffeur, Charles Basle. The steam records established by George Cannon were also replaced by new figures made by Louis Ross in the freak steam racer which made its first appearance at the Boston meet.

Cloudy weather in the morning made it look doubtful if the meeting would be held, and it was not until almost noon that the committee decided to start the races. It was fortunate that this decision was made, as soon after the first race was started the sun came out and the 5,000 spectators who had assembled sent up a mighty sigh of relief.

As is usual with the Providence meets, society turned out in numbers, and notwithstanding the threatening conditions of the morning the grand stand and both sides of the home-stretch, where more than 200 vehicles were packed, were gay with color.

The program consisted of nineteen events, an unnecessary number, as this practically turned the event into a series of match races and made it very confusing for the spectators to follow the contests, more especially as, owing to the usual delays, it was impossible to run the heats off in sequence.

In two races during the afternoon tires came off machines in the races, and in one

of them Ross drove his freak steamer over two miles with a tire off one of the driving wheels, giving the spectators a most exciting spectacle as he swung from side to side on the stretches in his endeavor to get control of his vehicle without diminishing his speed. In another race the Pope-Toledo racer finished on the rim after throwing a tire with sufficient force to

The summaries are as follows:

One mile, for electric cars—Won by W. B. Snow, special make; J. M. Clarke, Waverley, second. Time, 2:15.

Five miles, special match—Won by A. S. Lee, 24-h.p. Pope-Toledo; A. E. Morrison, 24-h.p. Peerless, dropped out on first mile on account of disabled vibrator. Time, 6:25 4-5.

Three-mile exhibition, by Tom Fetch, 22-h.p. Packard, 1,000-mile non-stop car. Time, 6:43 2-5.

Five miles, heavyweight class—Won by H. L. Bowden's 90-h.p. Mercedes, driven by Charles Basle; A. C. Webb, 60-h.p. Pope-Toledo, second; William Wallace's 30-h.p. Renault, driven by Joseph St. George, third. Time, 4:41 2-5. Fastest mile, :55.

Five miles, lightweight class—Won by Frank Kulick, 20-h.p. Ford; E. F. Cameron,



[FIGHT FOR FIRST PLACE BETWEEN GASOLINE AND STEAM CAR AT PROVIDENCE, SEPT. 10.

knock a board out of the fence on the back-stretch.

In the light-weight class the 20-horsepower Ford racer made new figures for vehicles under 881 pounds, although it was not so announced. The little vehicle made the first mile in 1:04 1-5, two miles in 2:05, three in 3:06 2-5, four in 4:07 4-5, and five in 5:09 4-5.

10-h.p. Cameron, second. Time, 5:27 2-5.

Five miles, special, for 7-h.p. Stevens Duryeas—Won by C. D. Snow; W. J. Chapman, second. Time, 7:44 2-5.

Five miles, middleweight class—Won by Frank Kulick, 20-h.p. Ford; William Wallace, 30-h.p. Renault, second. Time, 5:09 4-5. New record.

Five-mile, special for 10-h.p. Franklins—Won by Edward Dauer; H. A. Capron, Jr., second. Time, 8:37 1-5.

Five-mile, touring class invitation—Won by F. C. Fletcher's 24-h.p. Pope-Toledo, driven by A. S. Lee; J. A. Foster, 24-h.p. Winton Quad, second. Time, 6:31 2-5.

Five-mile, special for steamers—Won by Louis S. Ross, 18-h.p. Stanley; Paul Durbin, Stanley, second. Time, 5:08 3-5. New world's track record for steam vehicles. Time by miles, 1:05 1-5, 1:00 2-5, 1:00, 1:00 1-5, 1:02 4-5.

Five-mile, special match—Won by A. S. Lee's 24-h.p. Pope-Toledo; H. E. Rogers, 24-h.p. Peerless, second. Time, 5:58 2-5.

Ten-mile, free-for-all—Won by H. L. Bowden's 90-h.p. Mercedes, driven by Charles Basle; Louis S. Ross, 18-h.p. Stanley, second. Time, 9:13. New world's track record, and also the following intermediate records except the first mile. Time by miles: :59 2-5, 1:53 2-5, 2:47 2-5, 3:42 2-5, 4:37 2-5, 5:32 1-5, 6:26 4-5, 7:21, 8:17, 9:13. Fastest mile, the third, in :54. Time for Ross by miles: 1:02, 3:07 1-5, 4:08 3-5, 5:12, 6:16 1-5, 7:17, 8:16 3-5, 9:28 1-5, 10:12.

[SPECTATORS' CARS LINED UP ALONG THE FENCE IN FRONT OF GRAND STAND.

CHICAGO RACE MEET SEPT. 30-OCT. 1.
Special Correspondence.

CHICAGO, Sept. 12.—An automobile race meet will be given in this city at the Harlem race track on Friday and Saturday, September 30 and October 1, by the Chi-

cago Automobile Club. This was decided at the meeting of the board of directors last Thursday, and the racing committee, consisting of F. C. Donald, Jerome A. Ellis and John E. Fry, was instructed to arrange the details. The committee is in communication with prominent racing men, and it hopes to get an aggregation of talent that, combined with the fast drivers in the local club, will arouse enough interest to make this the greatest meet ever given west of Detroit.

WISCONSIN FAIR RACES.

Automobile and Motorcycle Events at Milwaukee Preceded by Parade.

Special Correspondence.

MILWAUKEE, Sept. 10.—Friday afternoon was automobile and carnival day at the State Fair, which was held in this city from September 5 to 9, and, while the automobile races were somewhat of a disappointment, owing principally to the lack of experience on the part of the officials, the enthusiasm evinced was gratifying to all admirers of the sport.

Eighty automobiles assembled at the Pfister Hotel at 2:30 o'clock in response to invitations to participate in a parade to the Fair grounds, and a very pleasing spectacle was presented when the long line of autos passed through the streets, as many of the machines were prettily decorated with flowers and streamers. Upon reaching the park the cars drew up within the half-mile track directly opposite the grandstand, from which position their occupants viewed the races.

After the horse races had been completed and the announcement was made at 4:15 p.m. that "We are now ready for the automobile races," a demonstration of approval emanated from the stand.

Three machines should have started in the first race, but owing to the ruling of some unknown official, Orlando Weber's Toledo did not take part, leaving Jonas's four-cylinder Peerless and Arthur Gardner's two-cylinder Rambler to compete alone. Fred Tone drove the Peerless, and



The training of horses to pass without fear the growing number of automobiles being used in the White Mountains in New Hampshire is carried on at the Mount Washington Hotel, Bretton Woods, in the way shown above. As motorists are being encouraged to enjoy the beauties of the scenery in that section, and the spirited horses driven over the narrow, winding roads are as yet little accustomed to the power vehicle, the desirability of such training is apparent. The system is recommended in other sections where autos are just beginning to make their appearance. As the first move the cars are driven slowly into the stable while the horses are in their stalls. Then by degrees the horses are induced to eat oats from the cars, which some of them do after an hour's urging. After a few days the animals will allow the machines to be driven about among them in the yard without being frightened.

after the first half mile had been covered it was merely a question of how badly Gardner would be beaten. The Rambler hung on with remarkable tenacity, but was, of course, outclassed by its four-cylinder opponent. The Peerless finished more than half a mile in the lead, in 13:44 1-2 for the ten miles.

Immediately after the race a protest was made on account of the Toledo not having been allowed to enter, and after considerable discussion it was finally decided to allow the Toledo to go against the Peerless. The race was close for the first mile, but after that two cylinders of the Peerless ceased firing and Tone, the driver, decided to withdraw, permitting Charles Soules in the Toledo to finish the five miles alone, covering the distance in 5:58. The second mile was made in 1:07, the best time of the afternoon.

The next race was a five-mile contest for 16-horsepower machines, and was won handily by George Odenbrett, who drove a

Franklin. A White and a Rambler were the other factors in the race, the former dropping out after the second mile and the latter quitting in the third, leaving Odenbrett to finish. His time was 7:27.

The motorcycle races were next in order, and resulted in closer competition. Eight machines started, and Sampson, on an Indian, won, Frank Zerbis, on a Mitchell, crossing the tape a close second. It was a pretty race, Zerbis and Sampson alternating in the lead for two miles, after which Sampson took the lead and maintained it, covering the five miles in 6:50.

The second motorcycle race, a two-mile open, was won by Zerbis in 2:52, with Sampson second.

Following are the summaries:

Ten-mile open—Fred Tone, 24-horsepower Peerless, 1st; Arthur Gardner, 16-horsepower Rambler, 2nd. Time, 13:44 1-2.

Five-mile exhibition—Charles Soules, 24-horsepower Pope-Toledo. Time, 5:58.

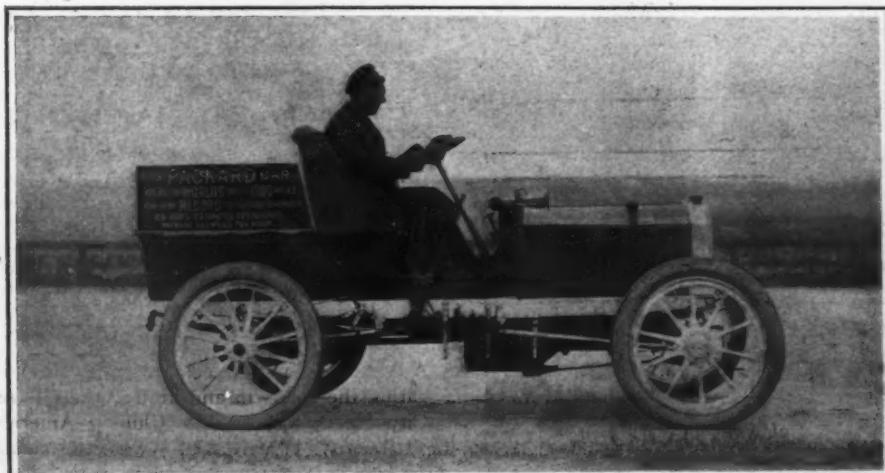
Five-mile race for 16-horsepower cars—George Odenbrett, 10-horsepower Franklin, 1st. Time 7:27.

Five-mile open motorcycle race—Sampson (Indian), 1st; Zerbis (Mitchell), 2nd; A. H. Nichols (Rambler), third. Time, 6:50.

Two-mile open motorcycle race—Frank Zerbis (Mitchell), 1st; Paul Sampson (Indian), 2nd; A. H. Nichols (Rambler), 3rd. Time, 2:52.

Seventy-two automobiles are in use in Des Moines, Ia.

"Bring on your automobiles. There may be a few runaways, but the horses will have to get used to them, as they did in the case of the bicycle, and then the increased use of automobiles means better roads. If there is anything Iowa needs it is better roads."—*Boone Republican*.



PACKARD NON-STOP TOURING CAR AND TOM FETCH AT PROVIDENCE MEET.

Autos in Army Maneuvers.

The United States War Department has begun making tests of the suitability of the automobile in army maneuvers. After considerable investigation, the Department had a special car designed and built for the purpose of making tests. The machine is a telegraph and telephone car, and will be used by the U. S. Signal Corps for running telegraph and telephone lines and also as a portable telegraph and telephone station. It will be regularly stationed at the U. S. Signal Corps Post at Fort Myer, Va., but was sent to Manassas to take part in the maneuvers held last week, in order that the soldiers might become in some degree familiar with its operation.

General Corbin, who with his staff, used a White steam car in moving from place to place during the military operations, expressed himself strongly in favor of the automobile for military work, both staff and field, being particularly impressed with



U. S. ARMY AUTO TELEGRAPH CAR.

the celerity with which movements could be made, notwithstanding the poor condition of the roads.

The telegraph car, which was built by Winton, is in its main features similar to the regular touring car built by that concern. Instead of the usual form of tonneau, however, there is a special tonneau with two seats running lengthwise of the car and facing each other. The car is equipped



GENERAL CORBIN, U. S. A., ON CAMP INSPECTION DURING MANEVRES AT MANASSAS.

with a table on which the telegraph and telephone instruments are placed. Under the seats there is ample storage space for supplies and equipment of all kinds, and on the sides are iron racks for lances and light poles used for erecting temporary overhead wires. The electrical instruments with which the car is equipped embrace the most improved apparatus, including a special sounder for working in the midst of the noise of battle. The squad detailed to go with the car is composed of eight or nine men, six of whom will act as guards. The machine is officially designated as the "Signal Corps telegraph auto car."

two grooves, into which the molten iron runs and makes a solid joint. A large radiating surface can be secured by spacing the radiators closely, the only limit being



NEW AIR COOLED CYLINDER.

the necessity for leaving sufficient space for the circulation of air.

The greatest possible conductivity between the two metals is secured by this method, which secures the advantage of the superior radiation of the copper without permitting the difference in expansion to diminish the intimate contact between the flanges and the cylinder walls.

These cylinders have been brought out by the Hartford Pattern and Model Company, of Hartford, Conn.



U. S. SIGNAL CORPS CONSTRUCTION AND REPAIR WAGON WITH GASOLINE MOTOR.

William Morgan, manager of the Philadelphia branch of the Locomobile Company and secretary of the Philadelphia Automobile Trade Association, is investigating the roads in and around the Quaker City for the Automobile Club of America. The results will form a portion of the official records of the Club, and will be printed in convenient form for reference.

Auto-Boat Race from Paris to Sea.

Six-Day Contest on River Seine Won by "Mercedes IV."— "Hotchkiss" Captures the Gaston Menier Cup.

Special Correspondence.

PARIS, Sept. 1.—The auto-boat race from Paris to the sea, down the River Seine, through locks and therefore by short stages, was one of the most peculiar racing events on record. The total distance from Paris, where the race was started, to Trouville, the finishing point, is 357 kilometers, or 221 miles. Had it not been for the locks in the river, the whole course could have been covered in two days' racing; but the locks made it necessary to divide the distance into stretches of odd lengths and spin out the contest over six days, from August 14 to 19 inclusive.

The first day's run was 90 kilometers, the second 109, the third 22, the fourth 67, the fifth 55, and the sixth only 14. Some ar-

The first day's run was won by *Mercedes IV.*, and she followed this up by winning every day's heat except the fifth, which was won by *Hotchkiss*. This placed *Mercedes IV.* well up, and she came out a winner of the series quite comfortably. She was pressed closely by *Hotchkiss*, however, and it is thought that had the latter not suffered numerous delays from trivial causes, such as broken ignition wires, weed-fouled propeller and the like, the result might have been different. The beautiful regularity of running exhibited by *Mercedes IV.* kept her continually in the lead.

The second day's run, of 109 kilometers, the longest of the series, proved to be the last for *Trèfle-à-Quatre*. As she was not

Mercedes IV. in the lead as usual and *Hotchkiss* close behind.

In the class for racers under 8 meters, *La Rapee III.* took first place, *Titan*, which would in all probability have beaten her, having dropped out on the last day. In the cruiser classes, the winners were *Titan IV.*, *Arion II.*, *Vas-y* and *Usona II.*, the last being engined with a Lozier motor. Altogether four racers and ten cruisers finished out of nine starters in the racing class, twelve cruisers, twelve "miscellaneous" and one unclassed.

Absence of the English boats from the long race was much commented upon, as their performance would have been watched with a great deal of interest.

Sunday, August 21, was devoted to the Gaston Menier Cup race, a three-mile dash, which was won in magnificent style by *Hotchkiss*, much to the joy of Henry Fournier, who ran her. The competitors were *Hotchkiss*, *Trèfle-à-Quatre* and *Napier II.*, the boats finishing in the order named. The



"MERCEDES IV." WINNER OF SIX-DAY RACE DOWN THE RIVER SEINE—CHARACTERISTIC SCENERY ALONG THE BANKS.

angement was necessary whereby the time occupied in passing through the locks would not count against the contestants, so the time of the racers was taken 100 meters on each side of each lock, the intervening time being neutralized. Some of the contestants took advantage of this arrangement to make repairs and adjustments, stopping after leaving a lock and before reaching the departing point to work on their motors. A favorite trick also was to so manoeuvre as to reach the lock gate just too late to get in, when it would be necessary to wait until it opened again, giving a fine opportunity to do a little tinkering.

The start the first day was made at 9:10 a. m., the following boats, from 8 to 12 meters in length, getting away: *Mercedes IV.*, *Trèfle-à-Quatre*, *Hotchkiss* and *Gardner-Serpollet*. In the class for boats under 8 meters *Titan II.*, *Princess Elisabeth*, *Le Titan* and *La Rapee III.* started. Later came the cruisers, among which were *Mercedes III.*, *Vas-y*, *Susy* and other well-known boats.

running at all well, it was decided to withdraw her and try to get her in proper trim for the speed trials after the long race. On this day *La Rapee* ran second to *Mercedes IV.*, *Hotchkiss*, the usual holder of that place, having stopped to wrestle with a mass of weeds which entangled the propeller.

The third day found the *Gardner-Serpollet* out of the running, owing to an injury caused by the propeller striking an obstruction, leaving *Mercedes IV.*, and *Hotchkiss* to fight it out alone in their class. These two boats made a grand race on the fourth day, but *Mercedes IV.* showed a trifle more speed than her rival, possibly owing to the fact that the latter carried four men.

The fifth day's run was captured by *Hotchkiss*, which ran her best and beat *Mercedes IV.* by 1 minute 30 seconds in the 55 kilometers.

The sixth and last day's run was on the sea, and the winds blew and the waves ran high. Nevertheless the frail racers pounded into the seas, pulling through safely, with

times were as follows: *Hotchkiss*, 8:25 2-5; *Trèfle-à-Quatre*, 9:40 3-5; *Napier II.*, 10:11 2-5. The time made by *Hotchkiss* in this race was more than three minutes better than that made by *Napier* when she won last year's Gaston Menier Cup race.

For some reason the *Mercedes IV.* did not enter the Gaston Menier Cup race, the only contestants being those named. This, of course, robbed the contest of a certain amount of interest, as the comparison between *Mercedes IV.* and the *Hotchkiss* would have been most instructive.

MONTREAL LAUNCH RACES.

Special Correspondence.

MONTREAL, Sept. 12.—The first launch races ever held on Lake St. Louis were run Saturday under the auspices of the Royal St. Lawrence Yacht Club, and were very successful. The fourteen boats entered were divided into three classes. The slow boats were sent away first and covered a course of five miles; the launches in the second and third classes covered the same



"LA RAPEE III," WINNER IN SECOND CLASS, ARRIVING AT TROUVILLE, ON THE SEA, THE END OF THE RACE.

course twice. The boats were started at such intervals as previous tests warranted the committee in supposing were their true handicaps, so that the finishes should be close and the boats secure places and prizes in the order of finish.

The two fastest boats were *Cora* and *Edna*. The latter was not entered, but she started with *Cora* and raced against time, covering the ten-mile course in 47 minutes 25 seconds. *Cora* filled with water near the outer buoy.

The results follow:

	FIRST CLASS.	Elapsed	
	Start	Finish	Time
<i>Normandie</i>	4:56:00	5:48:40	52:40
<i>If</i>	4:58:00	5:39:40	41:40
Beaver			
<i>Mable</i>	4:59:00	5:41:55	42:55
SECOND CLASS.			
<i>Le Balaine</i>	4:44:30	6:07:08	1:22:38
<i>Irene</i>	4:53:30	6:08:50	1:15:20
<i>Dream</i>	4:53:50	6:04:08	1:10:18
THIRD CLASS.			
<i>Le Brochet</i>	5:00:00	6:09:32	1:09:32
<i>Le Nap</i>	5:05:40	6:15:45	1:10:05
<i>Duverney</i>	5:06:40	6:14:55	1:07:35
<i>Jack of Hearts</i>	5:11:20	6:17:42	1:06:22
<i>Le Bouton</i>	5:13:20	6:08:15	1:54:55
<i>Cora</i>	5:21:20	Did not finish.	
<i>Edna</i>	5:21:20	6:08:45	47:25

AUTO-BOAT MATCH RACE.

Interesting Heats Between Leighton Boats of Same Size and Power.

Special Correspondence.

OGDENSBURG, N. Y., Sept. 8.—The match between the two launches *Pink* and *Kitten* was run on the St. Lawrence River here

on September 6 and 7, both races being won by the *Kitten*. The prize was a copper kettle designed and presented by Frederic Remington, and made under his direction by an Ogdensburg blacksmith.

The two launches were built from the same moulds, being 21 feet 10 inches over all, 21 feet 8 inches load waterline, and 3 feet 6 inches breadth. They were designed by H. J. Leighton and built by T. M. Milton, the *Pink* in 1903 and the *Kitten* this year. The motors are also identical, three cylinders, 4 by 4 inches, nominally 7-horsepower, but giving more than 10 in actual running. The *Pink*, owned by Jonathan Wainwright, was steered by Ernest Serrell, while the *Kitten*, owned by George Hall, was steered by S. G. Averell; both motors were handled by professionals. Both launches have three-bladed reversing wheels, and ran without muffers.

The course was a triangle of 2½ miles, as measured from the chart, four rounds being run, or ten miles in all. The weather on both days was clear and cool, with the water perfectly calm. As both boats and the owners are well known on the river there was much interest in the match.

The first race was started at 11:35 a.m., the *Kitten* crossing within ten seconds of the gun and *Pink* ten seconds later. At the end of the first round *Kitten* led by 31 seconds; at the end of the second she had added 1 minute to this, owing to the missing of one cylinder on the *Pink* for a short time; on the third round she gained 40 seconds; and on the last round 4 seconds.

Her elapsed time for the ten miles was 38:32, an average of a mile in 3:51, or 15.5 statute miles per hour. The *Pink*'s time was 40:57, an average of 14.6 miles.

The conditions were equally favorable Wednesday, the start being made at 11 a.m. The *Pink* crossed the line within half a second of the gun, with the *Kitten* half a second after her. *Kitten* soon took the lead, being 1 minute 20 seconds ahead at the end of the first round. On the second round she added 35 seconds to this, on the third 51 seconds, and on the fourth 15 seconds. The *Pink* lost one minute through the slipping of a sleeve on her reverse. *Kitten*'s elapsed time was 37:20, or 3:44 to the mile, an average speed of 16.07 miles; *Pink*'s time was 40:20½, or a speed of 14.87.

The races were held under very favorable conditions; the water smooth, no wind, and the course partly with and partly against the current; nevertheless, the times are extraordinary for launches of this size and build. The match was under the rules of the American Power Boat Association, but no allowance was necessary. A. R. Porte was referee; E. C. T. Smith, starter, and Allen Newell, timer.

Some time this week a special match will take place between the *Chip*, a Leighton launch owned by Mr. Wainwright, and the *Jack*, owned by S. G. Averell.

UPPER DELAWARE RACES.

"Boomerang" and "Nada III" Win Riverton Yacht Club Auto-Boat Contests.

Special Correspondence.

PHILADELPHIA, Sept. 12.—Last Saturday's motor boat races of the Riverton Yacht Club, on the Upper Delaware, gave local owners of that class of craft their first real chance to try conclusions in their favorite sport, and afforded a large crowd afloat and ashore an opportunity of seeing the latest of aquatic pastimes. That the affair was a success was the general verdict, wind and weather being just right, and aiding materially toward the favorable result.

The course was laid out from a point off the Riverton Yacht Club's house up the river to the lower Hen and Chickens buoy, thence down the river to the buoy off Seven-Mile Point, twice around—a distance in all of ten and one-half nautical



"HOTCHKISS," WINNER OF GASTON MENIER CUP, HENRY FOURNIER STEERING.

THE AUTOMOBILE.

September 17, 1904.

miles. With the aid of glasses the contestants were at all times in sight of the officials and spectators.

There were two events—for small boats and forty-footers or over. The former filled well, thirteen boats being sent away, while in the race for the larger craft only two started. In the first race George Balsley's queer-looking *Red Devil* was the favorite, although E. H. Godshalk's *Nada I.* and *Nada III.* were well thought of by reason of the first of these two similarly designed boats having won in its class last June.

In the 40-foot class, *Boomerang*, although rated at nearly the same power as its opponent, *Unique*, was given a start of 12 1-2 minutes over the latter, under the A. P. B. A. racing rules. It was too much of a handicap, and although *Unique* pulled up about four minutes on her rival, the race at no time had the appearance of a contest.

There was more excitement in the little fellows' race, and the handicapping was

a plucky race. Following is the summary:

SMALL BOATS.

Boat and owner.	Elapsed time.
<i>Nada III.</i> , E. H. Godshalk	1:02:11
<i>Nada I.</i> , Helen Godshalk	1:03:27
<i>Red Devil</i> , Geo. Balsley	1:06:45
<i>Now Then</i> , Dr. Rink	1:11:40
<i>Nan</i> , J. W. Ott	1:18:40
<i>Wizard</i> , R. L. Binder	1:41:49
<i>Maud Blair</i> , John Blair	1:42:48
<i>Elizabeth</i> , F. F. Waechter	1:57:13
<i>Anna Belle</i> , W. H. Wolstencroft	1:47:14
<i>Wilhelmina</i> , Dr. E. M. Byers	1:42:07
<i>May</i> , J. F. Machell	withdrew
<i>New Jersey</i> , I. France	withdrew
<i>Lovica</i> , C. B. Mitchell	withdrew

40-FOOT BOATS.

<i>Boomerang</i> , E. H. Godshalk	1:01:48
<i>Unique</i> , H. E. Danzenbaker	:58:53

WINNIPEG ROAD RACE.

Good Time over Forty Miles of Bad Road in First Western Canada Event.

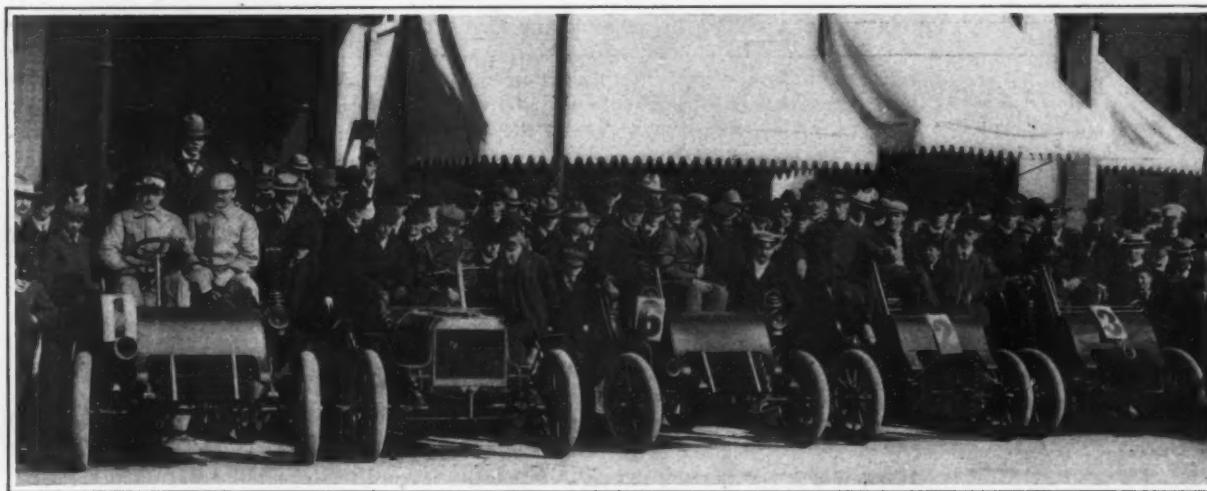
Special Correspondence.

WINNIPEG, Sept. 7.—The first automobile road race ever run in western Canada was

first portion being over a prairie trail, followed by a "made" road, which was terribly rutty, and in which many great boulders stuck up in the track to a height of nearly two feet, necessitating constant watchfulness and care to prevent the axles from striking. Where the road approached the turning point it ran through thick bush that prevented the drivers seeing very far ahead.

A great deal of interest was taken in the race, a large crowd having gathered at the Clarendon Hotel to see the start, and at Stonewall practically the whole town had turned out to welcome the pioneers of a new sport. To prevent any possibility of trouble with the police, the course between the Clarendon Hotel and the western extremity of Notre Dame was marked as a control, the drivers being restricted to a speed of ten miles an hour within this stretch.

A friendly farmer gave McLeod considerable assistance in fixing up his car sufficiently well to proceed slowly into Stone-



CARS AND DRIVERS THAT COMPETED IN THE FIRST AUTOMOBILE ROAD RACE HELD IN WESTERN CANADA, AT WINNIPEG.

somewhat better. The handicaps varied from 5 to almost 40 minutes, the *Lovica*, with 39 minutes 48 seconds start, being the limit boat.

The two *Nadas* were given about ten minutes' start on the scratch boats, *Red Devil* and *Now Then*, and not only held their own, but pulled away from their pursuers, *Nada III.* gaining about five minutes on *Red Devil* and nearly ten on *Now Then*. *Nada I.* did nearly as well, gaining three minutes and eight minutes, respectively, on the scratch boats. The *Nadas* easily cleaned up everything ahead of them and finished far in the lead, *Nada III.* 1 minute 16 seconds ahead of her sister boat, which was 13 minutes 25 seconds ahead of *Red Devil*, the latter leading *Now Then* across the line by 4 minutes and 55 seconds.

The fastest time over the course was made by Danzenbaker's *Unique*—57 minutes 53 seconds.

Miss Helen Godshalk handled *Nada I.*, and although beaten the young lady made

held Monday, September 5, when five cars were entered for a race to Stonewall and back, a distance of forty miles. The entries were as follows: J. K. McCulloch, 12-horsepower, Ford; H. D. McLaughlin, 12-horsepower Ford; W. C. Power, 12-horsepower Auto-Car; R. McLeod, 10-horsepower Cadillac, and J. Kelley, 10-horsepower Cadillac.

McCulloch won in the extremely good time of 1 hour 40 minutes, with McLaughlin running him very close and finishing two minutes later. Power came in third, completing the full distance in 1 hour 57 minutes. McCulloch lost more than five minutes replenishing his gasoline supply, which became exhausted a little more than a mile from the finish, having started through an oversight with the tank only partially full.

McLeod had the misfortune to break the distance rod and severely bend the front axle of his car, and Kelley abandoned the race owing to trouble with a faulty clutch.

The road was of a varied nature, the

wall, where repairs were made in the local blacksmith shop by J. McCulloch, who, after he had finished the race, obtained the necessary tools and parts, and returned to Stonewall to help McLeod out of his trouble.

The inhabitants of French towns are "scrapping" with one another as to which place shall have the honor of being the center of the next Gordon-Bennett Cup race. Long Islanders please note.

To decide a wager that he could not cover 50,000 kilometers (approximately 31,000 miles) in twelve months' touring by automobile in Europe and Africa, M. Henriot, the French motorist, accompanied by his wife, started from Ostend last October. He recently arrived in Geneva after a run from Rome, having covered more than the required distance; his itinerary including France, Spain, Morocco, Algeria, Tripoli, Egypt and Italy. Many exciting incidents occurred en route, including being twice robbed by brigands in North Africa.

Forty Miles an Hour up Mt. Ventoux.

Rougier, in His Gordon Bennett Turcat-Mery Racer, Rises One Mile in a 13 1-2 Mile Course in 21:12 3-5.

Special Correspondence.

PARIS, Sept. 1.—The French counterpart of the American "Climb to the Clouds" is the Mont Ventoux climb, organized annually by the Vauclusien Automobile Club and *L'Auto*. The course is a mountain road, situated near Carpentras, and in places has dangerously sharp turns, necessitating the cars to come almost to a stop to get around, while much of the roadway is very rocky. The course is 21.6 kilometers (13.4 miles) in length, and rises from an altitude of 974 feet at the starting point to 6,215 feet above sea-level at the finish line at the top, the average gradient being 8 per cent. This makes a vertical rise of 5,241 feet in the 13.4 miles—or one mile lacking just 39 feet.

The third annual contest was held this year on August 27 and 28, the first day being devoted to competition by touring cars and motorcycles, and the second to racing machines. Thirteen cars competed on the first day, being classified according to price. Best time was made by Ollion in a Rochet-Schneider, who covered the course in 31:41 3-5, or at the rate of more than twenty-five miles an hour. Collomb, in a Mors, made the ascent in 33:50, taking second prize, and Bablot, in a Berliet, made

All of these times, fast as they seem, were vastly surpassed on the second day—Sunday—by the racing cars. Rougier, in a Turcat-Mery, made the climb of 13.4 miles in 21 minutes 12 2-5 seconds, breaking the previous record, held by himself, by 3 minutes 37 3-5 seconds. His speed averaged forty miles an hour. Just what this marvelous time means can be determined by computing the vertical lift, which is slightly more than four feet a second—to be exact,

24:37 3-5 in his 60-horsepower Mercedes last July.

Nearly all the big European racing cars of this year and their drivers took part in the contest. Throughout Saturday night the competitors kept driving up the mountain for practice. The first official ascent was made at 9:30 a. m. by Lancia in a F. I. A. T. His time was 23:05 4-5, which gave him fifth place in the final results.

Duray, in a Darracq, made the second best time of the day—21:41, Hemery (Darracq légère) third—22:26, and Le Blon (Hotchkiss) fourth—22:49 4-5.

Hemery's time broke the record in the light racing car class, held by Danjean, by 2:59, and beat the times of the following in the heavier racing-car class: Le Blon



A. FOURNIER, CLIMBING VENTOUX MOUNTAIN IN HOTCHKISS RACING CAR.



THE WINNER ROUGIER, IN TURCAT-MERY, MAKING ONE OF THE SHARP TURNS.

it in 33:55 4-5, winning third. Fourth and fifth places went respectively to Eparvier (Rochet-Schneider) in 35:10, and Heusselin (Rochet-Schneider) in 35:22 1-2. All of the Rochet-Schneider cars were in the class for cars costing \$3,200 to \$5,000, while the Mors and Berliet were in the class for cars costing more than \$5,000. Vimont, on an Ariès, made a good climb in 54 minutes flat in the class for cars costing from \$1,800 to \$2,400, beating by three seconds the best time made in the class above, for cars costing from \$2,400 to \$3,200.

Lamberjack, on a Griffon motorcycle, made the ascent in 51:17.

4.11 feet. This is equivalent to 247 feet vertical lift a minute. The fastest passenger elevators in America run at the rate of 450 feet a minute. As the first four kilometers of the course is almost level, it is safe to say that the car rose at the rate of more than five feet a second with its own power. The car used by Rougier was the identical 45-horsepower Turcat Mery that Rougier drove in the Gordon Bennett race in Germany.

By way of comparison it may be recalled that Harkness, who made the best time in the Mount Washington ascent, drove 7 1-2 miles and rose 4,600 feet in

(Hotchkiss), Lancia (F. I. A. T.), Baras (Darracq), A. Fournier (Hotchkiss), and M. Fournier (Wolseley).

The voiturette record was reduced from 43:35 2-5 to 29:25 by Albert on a Darracq, Laurent, on a Richard-Brasier, being second in this class in 34 minutes flat.

Honors in the racing motorcycle class fell to Inghilbert, on a Griffon, whose time was 32:20, beating the times of Laurent and Gaudermann in the voiturette category.

After the conclusion of the climbing tests a banquet was held at the top of the mountain, followed in the evening by a reception at the clubhouse at Avignon.

Since the passage of the vehicle registration ordinance in Dayton, O., the city license bureau has licensed eighty-five automobiles, three motorcycles, 1,500 bicycles, and about 1,400 horse-drawn vehicles, the total revenue derived therefrom amounting to about \$4,000. The city clerk's office is still busy issuing permits.

When the smell of gasoline gets so strong that it is likewise a matter of taste, cheer yourself up with the thought that it may perhaps be acquired. Don't forget your triumph over caviar. And then, some day, some way, you may be able to get an automobile of your own, and it is a wise man who always directs his course so that he won't have too much to take back.—*Indianapolis News*.

THE AUTOMOBILE

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Automobiles at the World's Fair. Big buildings and big exhibits do not make an exposition. Big men in control are an essential if the exposition is to be of real value, something more than a glorified county fair. So far as the automobile exhibit at the Louisiana Purchase Exposition at St. Louis is concerned, without reference to other features of the Fair, the conception of the responsible officials is manifestly that of big little men. A great National opportunity to exhibit and exploit the greatest invention of modern times—the automobile—has slipped through their hands and a dry-as-dust collection of cars, shut out for the most part from the bulk of the transportation exhibits, is the tangible expression of their intellectual capacity. In fairness let it be said that doubtless they did the best they knew how. Ignorant of what the automobile is, or what it means to modern intense civilized life, they have given it a certain amount of floor space just as they did private carriages and farm wagons and hearses, and passed on their interest and energies to that monstrous joke in modern transportation, the dirigible balloon.

Thousands of dollars have been expended by the Fair officials in the construction of an "Aeronautic Concourse" and in the promotion and exploitation of fake contests which have neither scientific nor commer-

cial value. The net result has been the malicious destruction of the Santos-Dumont balloon and the complete and utter collapse of the much advertised race in the air. A scientific appreciation of the possibilities of the true flying machine or aeroplane would have secured proper recognition for such work of merit as has been accomplished by real investigators at home and abroad, and this without a taint of circus promotion.

From the viewpoint of the industry it is a question as to what extent the National Association of Automobile Manufacturers is censurable in weakly submitting to this sidetracking of the automobile at the Fair. Its officials seem to have acquiesced weekly in the suffocation of the American exhibit. They knew, if the World's Fair officials did not, that the automobile is essentially an exponent of motion. That an exhibit consisting solely of cars in a static condition is not of any serious educational value to that great mass of the American people which would visit the Fair and of which only a small proportion has any real acquaintance with modern rapid transit on the roads.

To have risen to the opportunity would have meant the construction of a proper track or speedway with adequate garage accommodation and room for the display of cars, so that they could be shown in operation. A well arranged and frequent series of trials, especially such as demonstrated the certainty of control in the automobile, its ability to go up grades, and these supplemented by various economy and efficiency tests, would have given the visiting public some grasp of the automobile as a means of transportation. The expense of laying out such a demonstration park would not have been great, and in the immense expanse of the Fair grounds a location would have been easily found. There was certainly no lack of matériel and the responsibility for failure rests solely with the personnel.



From the Exhibitors' Viewpoint.

Some subtle influences are responsible for the state of armed neutrality that exists between a large number of the automobile exhibitors and the Fair officials at St. Louis. Instead of co-operation there is an evident want of unity of purpose, an indifference upon the part of the Fair management that is resented by the exhibitors who have individually endeavored to contribute to the success of the Exposition. A visitor who did not look beneath the surface would not observe the real situation, but it exists nevertheless and is prejudicial to the best interests of both exhibitors and exhibition. Some of the things which denote this condition seem trivial in themselves, they are pin-pricks that when oft repeated stir up anger.

First of these in point of time was the prohibition of demonstrating machines

within the grounds, following the opening of the Fair. When at length permission was granted the route to be used was of such a nature that it did not better conditions greatly. Another cause for discontent was the pettifogging cutting down of the number of lights in the American section, and the occasional turning out of all the lights at night, so that the car cleaners are hindered in their work. The N. A. A. M. employs its men to do this work, and consequently does not make use of the services of the official cleaning bureau, and exhibitors draw their own conclusions.

It is also difficult to police an exhibit properly in the dark and petty thefts in the American automobile section are frequently reported. In the earlier days of the Fair the side doors of the Transportation Building leading into this section were not locked at night.

Leaky roofs are another source of annoyance and on wet days exhibitors are kept busy moving cars out of harm's way.

Transportation Day at the Fair supplied another irritant. Previous to this a transportation exhibitors' association had been formed for the purpose of boozing this day at the Fair, and to the funds of this the automobile exhibitors generally subscribed. It developed, however, that in the exploitation of this day the railroad exhibitors were getting the lion's share of publicity. At the same time one of the French exhibitors who had taken a powerful car out into the grounds so as to try whether or not it could be driven slowly enough to take part in the Transportation Day parade was roughly handled by armed guards and the machine damaged. An indignation meeting of automobile exhibitors was the result, and it was at first decided not to enter any machines in the parade, although later several of the American exhibitors were induced to loan cars to help make the parade a success.

Another attack came from the State Commissioners' organization which, however, has no official connection with the Fair management. This organization sought to have the speed of all exhibitors' automobiles reduced to "one mile an hour" within the grounds. President François, to whom this request was made, happily ignored it.

Later the situation has cleared somewhat, as visitors' automobiles are now allowed within the grounds under proper restrictions and it is to be hoped that in the closing days of the Fair, which will doubtless be the best attended, a more helpful spirit will be displayed, and that no unpleasant memories will be carried away by the automobile exhibitors.



Automobile Fire Engines.

The rapid spread and brilliant promise of the self-propelled pleasure vehicle is, perhaps, liable to obscure our perception of what is certain before many years to be accomplished with motor vehicles in the commercial and similar fields.

It is a trite observation that the commercial vehicle is a more difficult problem than the pleasure vehicle, because it must demonstrate an economy in operating cost, wages, maintenance and fuel, and a freedom from accidental stoppage, at least equal to the best that can be done with horses, before it is entitled to be considered at all. It is this fact, so wholly unlike the considerations obtaining amongst pleasure vehicles, which has driven all manufacturers into getting their experience with the latter. When the problems of reliability, efficiency and economy have been fully solved for pleasure cars, it will not take long to differentiate the proper forms of running gear, motor and transmission for this and that commercial use.

Among the numberless utilitarian services to which the motor vehicle can, and some day will, be put, perhaps none is more interesting than the fire engine. The present type of fire engine has reached the limit of its development, since it cannot be made materially lighter, and three horses cannot pull a heavier load. To increase the power, it would be necessary to mount the boiler separately from the engine and pumps, which would manifestly be impracticable. Building development, however, has not reached its limit, and the logical necessity for greater power is apparent. Equally evident is the need for greater speed, and this, too, can be had by motor propulsion.

Steam driven fire engines have been, more or less, experimental constructions for the past twenty years at least, and latterly they have been, for experiments, rather frequently reported, both in this country and in England. But we may be sure that the explosion motor is only awaiting its finishing touches, so to say, to become the motive power *par excellence* for this service. It is both simpler and lighter than steam, and when the perfected kerosene oil engine has arrived it will be equally safe. Its possibilities in the way of attaining considerable powers within moderate limits of weight are indicated by the most recent racing machines. These will develop 100-horsepower or more on a total weight, without supplies, of about one ton. Few if any fire engines, we venture to say, develop more than half that power. The self-propelled fire engine would be little more than a highly developed motor wagon, with a pump so attached that the motor could drive either the vehicle or the pump. Such a machine could be built of ample strength and solidity without going beyond the weight of the horse-drawn steam fire engine, and it would have double or treble the power.

"Oh, my, yes, the Fizzletons are a very proud family."

"Have they a coat of arms?"

"No, but their automobile is almost covered with tags and numbers that they had to have put on it in Europe."—*Record-Heald* (Chicago).

THE AUTOMOBILE.

CANADIAN MOTORING CENTERED IN TORONTO.

Lively Interest in Runs and Racing Fostered by Thriving Automobile Club—Leading Dealers Handling Many American Cars.

Special Correspondence.

TORONTO, Can., Sept. 12.—Of the 600 automobiles licensed in the province of Ontario, 350 are owned in this city. Toronto is, in truth, the hub of automobiling in Canada, although Montreal, Hamilton and London are beginning to vie with it in enthusiasm. Most of the pioneer Canadian automobilists live here, the first car owned in Toronto, a Winton phaeton, having been imported by John Eaton in 1898. Mr. Eaton now rides in a \$7,500 Packard car.

Last year the sport took hold in earnest of the wealthier citizens, and many new cars appeared, but their number has been more than trebled during the present season.

Under such conditions it is not surprising that the Toronto Automobile Club is flourishing. It is a wideawake organization of about one hundred members, formed a little more than a year ago. One of its first acts was to assist the Legislature in drafting a bill to regulate the speed of automobiles on the public highways. The speed was fixed at fifteen miles an hour in country districts and at nine miles an hour in towns and cities. The province imposes a license fee of \$3 for the first year, and \$1 a year thereafter.

The by-laws of the club are very strict, requiring members to stop on the highway at the request of the driver of a restive horse. The club discountenances furious driving and stands for a reasonable and careful use of the highway, with due consideration for the rights and comfort of others.

The officers of the organization are: President, Dr. P. E. Doolittle; vice-president, W. A. Kemp; secretary-treasurer, Charles Webster; executive committee, A. E. Chatterton, F. W. Baillie, J. T. Packer, W. C. Gunnex, A. L. Massey and Murray Wilson.

Conditions in Toronto are favorable to the growth of automobiling. Nearly all of the city streets are paved with asphalt, and the abundance of trees and parks renders city runs most attractive. Country roads leading from the city are fairly good, while the scenery is fine, particularly along the shore of Lake Ontario. The three favorite runs are from Toronto to Cobourg, by the Kingston Road; Toronto to Hamilton and Niagara Falls, and Toronto to Jackson's Point, or Lake Simcoe. The automobile club has issued a neat pamphlet giving a complete description of the various routes as a guide to members.

A considerable number of club runs have been made, the more important being to Oshawa, to Cobourg, to Markham, to Buffalo and to Jackson's Point, on Lake Simcoe. At present the executive is planning for a long run to Montreal and Quebec, which will occupy three days.

About a month ago the Toronto club fitted up handsome clubrooms in the King Edward Hotel. The opening of these quarters was the occasion for special visits from the Cleveland and Buffalo automobile clubs, members of which made some fast times on the run between Niagara Falls and Toronto. The visiting sportsmen were entertained by their Toronto fellow devotees with a run around the city during the day, and a supper and smoking concert in the evening.

The first successful automobile race meet

in Canada was held at the Exhibition Park track a month ago, under the auspices of the automobile club. Held on a Saturday afternoon, the races were attended by fully 5,000 spectators, and the greatest interest was evinced in the various events, all of which were keenly contested. The feature of the day was the exhibition riding of Barney Oldfield, who did three miles on the half-mile track in 3:57 2-5. F. W. Baillie was the local motorist who most distinguished himself driving an up-to-date Peerless car. The officials of the club were well pleased with the success of the meet.

Three of the leading automobile dealers in Canada have their headquarters here, namely, the Canada Cycle & Motor Company, Hyslop Bros., and the Automobile & Supply Company. The first two concerns have branch houses in Winnipeg, Man.

The Canada Cycle & Motor Co. is the largest dealer in the country, and handles the following American cars: Peerless, Ford, Packard, Stevens, Duryea, Thomas, Autocar and Mitchell. It also sells the Ivanhoe, an electric runabout of its own manufacture, which has become quite popular.

The Automobile & Supply Company has done a large business, selling the Winton, Rambler and Columbia. G. H. Gooderham, a local manufacturer and capitalist, is president of this company.

Hyslop Bros. were former rivals of the Canada Cycle & Motor Co. in the sale of bicycles and, like that concern, have taken up automobiles. They sell the Yale, Cadillac and Oldsmobile.

STRIKE AT UNSANCTIONED SHOWS.

A cast-iron rule and agreement explicitly providing that no manufacturer of automobiles, parts or supplies, who applies for exhibition space at either of the national shows or any of the local automobile exhibitions sanctioned by the National Association of Automobile Manufacturers, Inc., shall exhibit or permit to be exhibited after September 1, 1904, any of his products at any show not sanctioned by the N. A. A. M. under penalty of forfeiture of his space and right to exhibit at sanctioned shows, was adopted at the meeting of the executive committee of the N. A. A. M. held September 7.

The resolution covering the matter is very prolix and involved, having been written with the intention of leaving no loophole by which a maker or dealer could display his goods at an unsanctioned show without suffering the penalty of disbarment from the sanctioned shows, the purpose of the N. A. A. M. being, of course, to get the absolute control of both national and local exhibitions into its own hands, so that manufacturers will not be burdened with an undesirable number of shows and will have a guarantee of good faith on the part of the promoters and managers, especially of the exhibitions in the smaller cities.

Writing from Rouen, American Consul Haynes states that the Ceylon government is considering the proposition of substituting, on all suitable roads, light automobiles for the old stage coaches that are still being used on important routes for mail and passenger traffic. The speed required is thirty miles an hour, and each vehicle must carry six passengers, 300 pounds of letters and 36 pounds of baggage.

Seventy-three automobiles are owned and operated in Des Moines, Ia., of which fifty-one are gasoline, eleven electric and eleven steam vehicles.

THE AUTOMOBILE.

September 17, 1904.

CLUB CAUTIONS DRIVERS.

Cleveland A. C. Wants to Allay Public Feeling and Modify Legislation.

Special Correspondence.

CLEVELAND, Sept. 10.—The serious matter of the increasing number of violations of the speed regulations was discussed at a recent meeting of the board of governors of the Cleveland Automobile Club, and it was decided to send to every automobile owner and operator in the city a letter urging the exercise of caution as to speed. It was the opinion of the governors that the recklessness of a few drivers was the cause of growing public animosity toward motorists in general, and that they were responsible for the feeling of the city authorities and the magistrates that the present ordinance regulating the use of motor vehicles does not provide sufficiently stringent punishment for violators.

Members of the city council are contemplating the advisability of amending the ordinance so as to provide for imprisonment as well as for fines. The magistrates, finding that the light fines formerly imposed upon reckless drivers who were brought into court failed to correct the nuisance, have lately been imposing the heaviest fines provided for by the ordinance. Some days ago an attempt was made to send one offender to the workhouse, on the charge of disorderly conduct, but the police judge decided that to be guilty of disorderly conduct one must commit an act that disturbed many persons. He thought an automobile scrocher disturbed only the persons who happened to be in the street in front of the machine. The judge also held that the act of exceeding speed limits was already covered by city and state laws, and that it would not be legal to prosecute offenders under acts relating to disorderly conduct.

MILWAUKEE AUTO REGULATIONS.

Special Correspondence.

MILWAUKEE, Sept. 10.—A substitute for the licensing and numbering ordinance was passed and was signed Friday. It will go into effect next Wednesday. The new measure contains many of the provisions of the previous ordinance, except that it raises the speed limit from eight miles to twelve miles an hour, and substitutes a \$1 permanent certificate for the annual license fee of \$1, which the automobile club holds is unconstitutional.

The salient features of the substitute ordinance are as follows:

Owners of automobiles shall file name and address, as well as description, with city clerk, and shall be given, for a fee of \$1, a numbered certificate. Certificates shall be good as long as the owner keeps his machine.

Owners shall equip machines with number of certificate in Arabic numerals of white metal on a black background, four inches high, two inches wide, and one inch between figures. This number shall be followed by the letter "M" for Milwaukee. Numbers shall be attached in conspicuous place in rear of machine.

No machine shall be operated by persons without full use of both hands and arms and over the age of eighteen years.

Speed limit twelve miles an hour instead of eight.

No part of machine or motor shall be kept running when automobile is standing in street without attendant.

Non residents are exempted from provisions of ordinance if they have complied with a similar law in home city. Otherwise they must apply for registration within forty-eight hours after arrival.

All provisions of the ordinance apply to motor cycles, except that numbers need be only one inch in height.

Secretary Drought, of the automobile club, in discussing the matter, said: "The automobile club is in favor of all just and equitable regulation of automobiles. We deplore the fact that some reckless automobilists are careless in the use of their machines. In drawing up the substitute ordinance it was our object to present a measure to the council that would be fair to the public as well as to the automobilist. If it becomes a law we shall do everything in our power to assist the city in enforcing its provisions."

WHITE MOUNTAINS FALL TOUR.

A sort of celebration in honor of the "arrival," as the French say, of the automobile in the White Mountains, of which the "Climb to the Clouds" was the precursor, will be held at Bretton Woods on the evening of Saturday, October 1, when an automobile tour will be brought to a conclusion by a banquet at the Mount Pleasant Hotel, given by Messrs. Anderson and Price, proprietors of the Mount Pleasant and the Mount Washington hotels.

The tour, which will be called the Bretton Woods Perfection Tour, will start from Boston probably September 29, two days being allowed for reaching Bretton Woods by easy running. A minimum time limit will be set, and those who exceed the speed called for by this limit will be disqualified. Fast driving will not be tolerated. Invitations to the number of 100 or more will be issued for this trip, and participants will be asked to take an observer as passenger. The prizes will be gold, silver and bronze medals.

Given fine weather, this tour should be a most delightful one, for in early October the crisp mountain air, the brilliant autumnal foliage and the picturesque drives are at their best. Full details as to routes, distances and other particulars can be obtained from W. J. Morgan, 1 Maiden Lane, New York.

SEARCHLIGHTS PROHIBITED IN PARK.

Special Correspondence.

PHILADELPHIA, Sept. 12.—The objection of local horse drivers to automobile searchlights, as outlined in these columns last week, have borne fruit in a ukase, issued last Friday by the Fairmount Park Commission, prohibiting the use of searchlights within the limits of the people's pleasure ground.

Colonel Snowton, who presided at the meeting of the commission, was of the opinion that the swinging searchlights frightened horses and that they were not at all necessary in the park, the roads all being well lighted. There was some discussion of the subject, but when the vote was taken on the question the majority was with the colonel.

It was further specified that every automobile shall carry two lights in front—one on each side—and one in the rear.

The Schenectady Railway Company is preparing to install two motor omnibuses on its road between Loudonville and Albany. The vehicles will be of 40-horse-power and of twenty-passenger capacity.

Judge Caleb H. Norris and his wife, of Marion, O., have reached their home after a two weeks' automobile tour. After touring for several days in Massachusetts, the Gettysburg battlefield was visited, and from there Judge Norris drove the machine to Marion without accident of any consequence.

AN INTER-CLUB VISIT.

Three Score Members of Chicago A. C. Are Guests of Grand Rapids Club.

Special Correspondence.

CHICAGO, Sept. 12.—Eighty-nine members of the Chicago Automobile Club, with thirty-one cars, accepted the invitation of the Grand Rapids Automobile Club to be its guests Saturday and Sunday and participate in an owners' matinee race meet open only to members of the two clubs.

The visitors assembled Friday evening at the Michigan avenue clubhouse, where dinner was served, and then the steamer *City of Holland* was boarded at 8 o'clock for an all-night ride across the lake. The run of thirty miles from Holland to Grand Rapids, Mich., was made without particular incident, the Grand Rapids club escorting the Chicagoans.

Frank X. Mudd, chairman of the runs and tours committee of the C. A. C., acted as starter at the races, and the judges were Dr. J. B. Weintraub and Vice-President W. G. Lloyd, of the C. A. C., and Charles B. Judd, of Grand Rapids.

The summary of the races follows:

One mile for runabouts costing \$800 or less—J. C. Bronson, Autocar, 1st; G. S. Chapin, Ford, 2d; Frank X. Mudd, Cadillac, 3d. Time, 2:01 3-5.

Three miles for touring cars costing \$2,000 or less—John E. Thoma, Rambler, 1st; O. E. Schell, Michigan, 2d; A. B. Richmond, Rambler, 3d. Time, 5:29.

Two miles for touring cars, \$1,200 or less—O. E. Schell, Michigan, 1st; John E. Thomas, Rambler, 2d; J. C. Bronson, Autocar, 3d. Time, 3:43 1-5.

Five miles for touring cars, \$3,500 or less—John E. Fry, Apperson Jackrabbit, 1st; Mortimer Luce, Royal Tourist, 2d; Walter Austin, Austin, 3d. Time, 8:21.

Ten-mile handicap, free-for-all—Sidney S. Gorham, Winton, handicap 1½ minutes, 1st; Dr. Frank H. Davis, Winton, 2 minutes, 2d; J. C. Bronson, Autocar, 1 minute, 3d; John E. Fry, Jackrabbit, scratch, 4th. Time, 20:25 1-5.

NUMBERS REQUIRED IN COLUMBUS.

Special Correspondence.

COLUMBUS, O., Sept. 12.—Some weeks ago the city council of Columbus passed an ordinance requiring automobiles to be numbered, and this week City Auditor Noble is sending out notices to owners of automobiles to appear at the city hall and secure numbers for their cars. The fee is \$1. The number is of aluminum on a black leather background.

In anticipation of the passage of the vehicle tax ordinance, which was drawn to virtually incorporate the identification measure, and about whose constitutionality there was some question, City Solicitor Butler at first advised the city auditor to hold up the numbering ordinance, but later advised that it be put into effect at once as the vehicle tax measure will not pass the council for some time.

PROPOSED SPEEDWAY IN CHICAGO.

Special Correspondence.

CHICAGO, Sept. 12.—A speedway for automobiles is now being talked of by members of the Chicago Automobile Club and the suggestion is made that the strip of land east of the Illinois Central railroad between 29th and 50th streets could be made into a first-class speedway. Several large property owners and residents along the proposed route have expressed themselves in favor of the project, and the matter will be submitted to the city council in the near future.



The Automobile Club of America has received a letter from the Department of Commerce and Labor at Washington stating that the Department has nothing whatever to do with either the interpretation or the enforcement of the law governing the transportation of explosives on ferry boats, which, amended somewhat, restricts the use of ferries by gasoline or steam automobiles to machines having power completely shut off. The only course left open to the club is to bring a test case in the courts or to make an endeavor to have the law changed sufficiently to eliminate the clauses causing hardship to automobilists, who now have to push their cars on and off of the ferries by hand, or else have them towed. The Secretary of the Department of Commerce and Labor further stated that the interpretation of the statue was vested solely in the courts, and no interpretation from any other source could have any value whatever. No definite plan of action has been decided upon by the A.C.A., but it is likely that a test case will be instituted for the purpose of obtaining an interpretation of the law from the courts, and also that Congress will be asked to modify the existing law so as to give relief to the automobilists.

* * *

A meeting of the Association of Licensed Automobile Manufacturers held at the association's headquarters, 7 East 42d street, New York, September 8, was attended by thirty members. Discussion was mainly of an informal character, and consisted of an exchange of experiences, views and opinions concerning prices, and the automobile business generally. It was decided to stop the practice of allowing commissions to persons other than regular agents. It was also decided that contracts between members of the Association and their agents should be made terminable at the will of either party, thus avoiding the possibility of either being hampered, in case of unsatisfactory conditions, by an unexpired agreement.

* * *

Interest in the automobile race meet to be held at the Empire track, Yonkers, September 24, will be augmented by the fact that a silver trophy has been offered for the lowering of Kiser's record of 52 4-5 seconds for the mile. It is expected that Carl Fisher will be on the track with his Premier *Comet* for the sole purpose of attacking this record. Another fast car entered is the skeleton racer recently built by Henry Ford, of 999 fame. Kenneth Skinner and A. E. Morrison, of Boston, are both expected to be among the competitors.

* * *

Much comment has been aroused by the offer of M. Charley, of Paris, the Mercedes agent, to donate \$10,000 as a prize for the first motor boat to cross the Atlantic from Havre to New York. The offer does not extend to boats crossing in the opposite direction. The opinion among automobilists seems to be that such a feat is practically impossible, and doubtless it is, so far as the racing type of auto-boat is concerned. Apparently, however, there is no reason why a properly built cruising launch could not do the trick. The only serious problem would be the storage of sufficient fuel to enable the boat to make the journey. A motor-boat has already crossed the Atlantic without serious difficulty. This was a 38-foot launch with 9-foot beam, propelled by

a 10-horsepower kerosene motor. The launch was of the trunk cabin type, and had not the slightest difficulty in weathering the several storms encountered, although the crew, consisting of a retired sea-captain and his sixteen-year-old son, suffered greatly from exhaustion and exposure. The fuel tanks carried 800 gallons of kerosene, which was found to be more than ample for the trip. The engine, which was of the explosive type, gave practically no trouble, and, with the launch, is still in commission in Australia.

* * *

Auto-boat races will be held September 21, 22 and 23 on the Hudson River off the clubhouse of the Columbia Yacht Club, when the Challenge Cup of the American Power Boat Association will be raced for. The *Standard*, now in the Thousand Islands, won the cup last June, but she will not be on hand to defend her title to it. The list of entries is a most interesting one, and if even a part of the fleet turns up at the starting point some fine racing may be expected. Among the boats are such fliers as W. K. Vanderbilt's new *Mercedes*, *Vingt-et-Un II.*, the Lozier boat *Shooting Star*, the new Fiat boat *Macaroni*, and the *Challenger*, Smith & Mabley's 150-horsepower Harmsworth racer, which has not really had a chance to show her best speed in a race. The other entries are *Marcerene II.*, *Mercedes II.*, *Regina*, *Catch Me*, *Josephine*, *Logarithm* and *Cricket*.

* * *

The dinner and meeting of the New York Automobile Trade Association last week was attended by seventeen members, the principal subject for discussion being the chauffeur problem. It was decided that chauffeurs registering with the association's registration bureau must bring the endorsement of some garage as well as references from former employers. This bureau is in charge of John F. Plummer, of the Locomobile Company of America; H. R. Worthington, of the Worthington Automobile Company, and W. P. Kennedy, secretary of the Trade Association. The names of chauffeurs registered at Albany will be sent to garages throughout the country for the purpose of discovering any drivers who are, for any reason, objectionable.

* * *

The big sight-seeing automobiles which start from the Flatiron building may have to operate under a charter hereafter. The operator of one of the vehicles was arrested a few days ago, charged with driving a stage that was not run under a permit from the Board of Aldermen, as required by the city charter. The magistrate discharged the chauffeur, and advised the automobile company that a permit must be secured. It has been hinted that jealousy of the cabmen and horse-drawn stage company is at the bottom of the trouble.

* * *

Automobiles played an important part in the battle of votes waged recently in Rye, N. Y., the bone of contention being the incorporation of Rye as a village. The votes in favor of incorporation were greatly in the majority, and it is said that the fact that automobile owners used their cars to take voters to the polls had a good deal to do with the size of the vote on the winning side. Most of the voters on the other side

went to the polls in the good old-fashioned way—on foot.

* * *

Newspaper reports of the collision of the Seabury auto-boat *Speedway* with a pier of the 127th street bridge over the Harlem River last week are amusing, in the light of the facts of the case. The boat was not running at full speed at the time, or the results might have been serious. While approaching the bridge on a trial run, the casting on one side of the rudder head gave way, throwing the rudder to one side. Being close to the bridge, it was impossible to avoid colliding with the pier; but, though the bow was considerably damaged, no one was thrown overboard, and Mr. Seabury, who was at the wheel, did not even get his feet wet. The damage has now been repaired and the boat is ready for the water. She is a 40-foot racing machine, and belongs to the Charles L. Seabury Company, by which she was built.

* * *

A fall tour will be held by the Automobile Club of America commencing on October 10 and continuing for five days. The route will be from New York to Delaware Water Gap, Philadelphia, Atlantic City, Lakewood and back to New York a total distance of about 374 miles over roads which are mainly good.

* * *

Magistrate Cornell, in a recent decision, expressed the opinion that if the owner of an automobile was in the machine when it was speeding beyond the legal limit, he, and not the chauffeur, should be made to suffer the penalty of the law, and that he should be sent to jail instead of fined.

*

The Duerr-Ward Co., Broadway and 58th street, Manhattan, has renewed the agency for the Royal Tourist cars for 1905, and has placed a larger order than that of this year. The company sold four of these cars last week.

* * *

The Long Island Automobile Club has extended the free use of its garage and club facilities to competitors in the forthcoming Vanderbilt Cup Race for their racing and touring cars, and all members of clubs affiliated with the A. A. A. are invited to make full use of the club while in attendance upon the race, this privilege extending from September 15 to October 8, the day on which the race will be held.

* * *

Charles Sweeny, of Spokane, Wash., president of the American Smelting Co., has recently purchased through Hollender & Tangeman, of New York, a F. I. A. T. touring car. The machine is of 24-30 horsepower, upholstered and finished all in white.

* * *

Mr. and Mrs. Henry Heert, of New York, are driving to the World's Fair in a 22-horsepower Richard-Brasier car. They are making the trip leisurely, purely for pleasure, and, after a stay in St. Louis, will return to New York in the car.

* * *

E. C. Bald, the former bicycle champion, will make his début as an automobile racer at the Poughkeepsie meet September 16, when he will drive a stripped Columbia stock car.

AMERICAN AND FOREIGN AUTOMOBILE AND AUTO BOAT FIXTURES.

Sept. 17.—Race Meet, Pittsfield, Mass. Brokshire A. C.
 Sept. 17.—Auto-Boat Challenge Cup Races. Hudson River, N. Y. C. American Power-Boat Assn.
 Sept. 17.—Race Meet, Island Park, Albany, A. C.
 Sept. 21-Oct. 1.—Coast Endurance Run, San Francisco. Los Angeles, Calif.
 Sept. 23.—Chateau-Thierry Race for Touring Cars. A. C. of France.
 Sept. 23-24.—Race Meet, Brunots Island, Pittsburg. A. C. of Pittsburg.
 Sept. 24.—Race Meet, Empire City, Track, Yonkers, N. Y.
 Sept. 25.—International Motorcycle Race, France. A. C. of France.
 Sept. 30.—Gaillon Races for Speed Cars, France.

Sept. 30-Oct. 1.—Race Meet, Harlem Track, Chicago. Chicago A. C.
 Sept. 30-Oct. 1.—Race Meet, Rockford, Ill. Rockford A. C.
 Oct. 1.—Race Meet, Point Breeze, Philadelphia. A. C. of Philadelphia.
 Oct. 5.—Dourdan Kilometer Trials. *Monde Sportif*.
 Oct. 8.—Vanderbilt Cup Race, Long Island, N. Y.
 Oct. 9.—Gallion Hill-Climbing Contests, France. *L'Auto*.
 Oct. 14-22.—Leipzig Cycle and Motor Show, Germany.
 Nov. 20.—French 100-Kilometer Trials, Algeria.
 Dec. 9.—Opening of French Automobile Salon. Paris.
 Dec. 26-Jan. 2.—Reliability Trials. Motor Union of Western India.

ROCKFORD RACE MEET PROGRAM.

Special Correspondence.

ROCKFORD, Ill., Sept. 12.—Plans for the race meet schedule to be held under the auspices of the Rockford A. C., at the Rockford driving park track September 30 and October 1 are fast nearing completion. The track is being put in shape, and some interesting races are expected. The program as now arranged is as follows:

September 30.—Five-mile race for club stock gasoline cars, 10-horsepower and less; one mile for club electric cars; five miles for club stock gasoline cars from 10 to 16-horsepower; five-mile for motorcycles; ten-mile free-for-all; quarter-mile slow race, free-for-all.

October 1.—Fifty-mile non-stop challenge race for club two-cylinder gasoline cars; ten miles for gasoline machines from 16 to 24-horsepower; fifteen-mile free-for-all; one-mile obstacle race; ten-mile handicap; speed trials; three-mile race for women drivers; three-mile motorcycle race.

CONTRACTS FOR R. E. OLDS PLANT

The R. E. Olds Company, recently incorporated at Lansing, Mich., has purchased for the site of its automobile works a twenty-acre tract—more than eight blocks—in the southern part of the city, and work has been started on the new plant. The property is so located that it affords connection with the Lake Shore and the Grand Trunk railroads, and spur tracks from each have been run into the property. Contracts have been awarded to Lansing firms for the construction of four brick buildings, with concrete foundations, which will comprise the greater portion of the factory. The dimensions of these are 70 by 700 feet, 60 by 500 feet, and two 70 by 500 feet. The plans also include an office building, two stories in height, 50 by 100 feet, and a track for the testing of machines. The contractors' bonds as filed call for the completion and delivery of the buildings within ninety days.

NEWS NOTES OF THE CLUBS.

MONTREAL.—The St. Louis Auto Club has been formed with a capital stock of \$20,000. Articles of incorporation give permission to hold lands, buildings, privileges on land or water in or about Lachine, or elsewhere, to erect clubhouses, and also to promote automobile and other sports.

HARTFORD, Conn.—The Hartford Motorcycle Club has been formed with twenty-two charter members. There are forty-five owners of machines in the city, and it is the hope of the club to induce all of those to become members. The following officers were elected: J. M. O'Malley, president; William Holtz, vice-president; Joseph Dalton, secretary; Alexander Smith, treasurer, and John O'Connor, captain.

LACROSSE, WIS.—Formation of a stock

company with a capital of \$10,000 is the latest development in the plans for the organization of an automobile club at La Crosse. The greater portion of the capital is intended to be used in securing and maintaining a garage. A committee has been appointed to complete the subscription list, and when this is done articles of incorporation will be filed.

CHICAGO.—At a recent meeting of the directors of the Chicago Automobile Club the following persons were admitted to membership: Elmer H. Adams, C. Roy Clough, Felix A. Cyr, A. B. Carson, James Deering, Ezra C. Fahrney, W. H. Fahrney, Otis C. Friend, Glenn C. Forgy, George S. Greenberg, Arthur L. Moore; John J. Mitchell, president Illinois Trust and Savings Bank; Charles Pope; James A. Reising; Byron L. Smith, president Northern Trust Company; Robert C. Tennant, William T. Woodley, Clyde P. Warner, E. C. Noe; John C. Shaffer, publisher Chicago *Evening Post*.

DALLAS, Tex.—The Dallas Automobile Club has accepted an invitation from the State Fair Association to hold a parade October 8, during the Texas Grand Festival, and also to give exhibition runs on the track on the two Sundays during the Festival. The resignation of Gross Scruggs, secretary of the club, was accepted, and George Schofield was elected to fill the vacancy. It was also decided to begin a campaign to increase the membership, and Messrs. Hill, Scruggs and Cameron were appointed a committee to conduct a canvass among local motorists not now members for the purpose of inducing them to join.

RECENT INCORPORATIONS.

Greater New York Auto-Bus Co., Washington, D. C.; capital, \$250,000. Incorporators, James F. Reddy, James T. Brody, John T. Bradley, all of Philadelphia; S. A. Terry, E. W. McCormick, William Wagner, B. E. T. Kretschmann, and E. M. Freeman.

Auto Engine Works, Minneapolis, Minn.; capital, \$200,000; to manufacture and sell engines, automobiles, launches, inspection cars and other machines, and parts and supplies. Incorporators, Charles H. Scholer, William T. Rogers and William J. West, of Minneapolis.

Northwestern Mfg. Co., Milwaukee, Wis.; capital, \$60,000; to manufacture and deal in dynamos and motors. Incorporators, William P. Harper, William S. Smith and John F. Harper.

The Webb Co., Newark, N. J.; capital, \$50,000; to manufacture motor vehicles and machinery. Incorporators, Walter H. Bond, Paul Munter and Joseph Gerrard.

Mathewson Automobile Co., Denver, Colo.; capital, \$10,000. Incorporators, Linn Mathewson, Fred W. Bailey and Fred V. Parks, of Denver.

The Consolidated Construction & Power Co., Ltd., Montreal, Canada; capital, \$100,000; to manufacture automobiles.

NEWS AND TRADE MISCELLANY.

The Cadillac Automobile Co., of Detroit, will put a four-cylinder touring car on the market next season, it is reported.

Thomas B. Jeffery, maker of the Rambler automobiles, accompanied by his wife, has recently been touring in New England.

The Ford Motor Company has leased a repair shop, storehouse and store at 147 Columbus avenue, Boston, Mass., where customers can be given the best of attention.

In their automobile trip on rails to the Pacific coast, Charles J. Glidden and wife have reached Moose Jaw in Northwestern Canada. To that point they had traveled 720 miles on the rails.

James Joyce, for some time past superintendent of the Electric Vehicle Co., of Hartford, Conn., has been made general manager of the sales department. George Wesley succeeds to the superintendence.

The sales department of the Black Diamond Automobile Co., Utica, N. Y., manufacturer of the Buckmobile, has been placed in charge of A. S. Robinson, formerly purchasing agent for the Searchmont Automobile Co.

Automobilists of Lincoln, Neb., are planning to hold an automobile race meet during the fair to be held early in October. A committee on arrangements is now trying to interest motorists throughout the State in the races.

An association, with a capital of \$20,000, has been formed in Havana, Cuba, having for its object the promotion of automobile races. Efforts are now on foot to hold a race meet in that city in February, 1905. Local motorists are enthusiastic over the prospects, and it is believed a successful meet can be had.

The Winton Motor Carriage Company has established a European branch at 48 Holborn Viaduct, London, E. C., England, where a complete line of Winton cars and parts will be carried. The new branch will be in charge of William L. Duck, an Englishman who has had a wide experience in the automobile business.

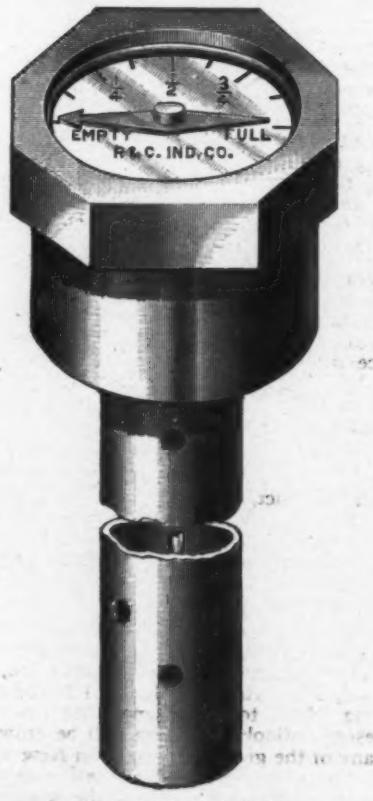
An unprecedented demand is reported at this early date for winter accommodations at Hotel Ormond and the Ormond Inn, Ormond, Fla. An addition of 100 rooms is being added to the former, but from the present outlook the house will be crowded. Many of the guests will go from New York, most of whom it is reported will ship touring cars for use throughout the winter.

September 17 will be automobile day at the State Fair in Topeka, Kan. Three races have been arranged, as follows: Two-mile dash for machines not exceeding 6 horsepower; a three-mile race for machines of 10 horsepower, or less, and a five-mile race for machines of more than 10 horsepower. Cash prizes from \$100 to \$300 are offered for the different events, the races being open to all.

INFORMATION FOR BUYERS.

MICHELIN MATTERS.—Norris Mason has retired from the presidency of the United States Agency of the Michelin Tire Company, New York, and has sold his interest in the concern to A. L. McMurtry, Jr., the inventor of the electrical timing apparatus which has shown such excellent qualities. The Agency is preparing for a large increase in business, a consignment of tires has just been received from the French house, and the stock on hand is now very complete. It is announced that the Michelin Tire Company will offer the following prizes for cars, fitted with Michelin tires, competing in the Vanderbilt cup race: To the winner, \$1,000; to the second car, \$500; to the third car, \$250; to the fourth car, \$100. Stations will be located at various convenient points along the Vanderbilt Cup course, where users of Michelin tires may obtain whatever material they may require for the repair or replacement of their tires. This will apply only to cars representing France, as the rules of the race require that everything on a car shall be the product of the country it represents.

TANK GAUGE.—The necessity for poking a stick into a gasoline tank to find out how much gasoline is left has frequently been the cause of dirty gasoline, and automobilists do not need to be reminded what that means. A very ingenious arrangement for showing at any time what amount of gasoline remains in the tank is being manufactured by the R. & C. Indicator Co., Bridgeport, Conn. The indicator consists of a plug, which fits the filling hole in



R. & C. FUEL INDICATOR.

the tank, having its top recessed and fitted with what looks exactly like a little magnetic compass, except that the markings, instead of indicating directions, indicate the height of the liquid in the tank. This dial is covered with a heavy glass. From the under side of the plug a tube descends into the tank, and in this tube is a float

actuating a spiral which carries at its upper extremity a small permanent magnet close to, but entirely separated from the little indicating needle. As the liquid rises and falls, the float causes the spiral, and, consequently, the magnet, to turn accordingly, and the magnet's position is followed by that of the needle. The float, spiral and magnet are enclosed within the tube, completely out of the way of injury, and as there is no opening of any kind in the plug there is no possibility of the escape of vapor. The R. & C. Indicator is made to fit the filling holes of standard American automobiles, and can be applied without preliminary fitting.

THE ROYAL TOURIST.—Confidence in the ability of their car to stand up under the severest tests has been strikingly shown by the Royal Motor Car Company, Cleveland, O., by their entry of a regular stock car in the forthcoming Vanderbilt Cup Race on Long Island. While it will, of course, be necessary to fit the machine with a racing body, gear it up to racing speed and make some changes necessary for such a race, yet the car remains a regular stock touring car of 35-horsepower, ready after lowering the gear, for every-day work and touring. Mr. Duerr, of the Duerr-Ward Company, local agent for this machine, is satisfied that the car will make a good showing in the big race. The machine is not, however, intended for a racer, being primarily an automobile for touring, as its name implies. It is without complicated features, and may be cared for by any one who has a certain degree of mechanical ability without the necessity for paying an expensive mechanic to do so. In this respect the car compares favorably with the more complicated foreign machines of about the same power, costing two or three times as much and necessitating the constant attention of a skilled specialist to run down and correct derangements in their intricate mechanism. The Royal is a four-cylinder machine built as simply as possible, and constructed to tour over American roads, which are, as is well known, distinctly bad. The weight of the car, ready for the road, is 2,500 pounds, so it will be seen that the ratio of horsepower to weight is sufficient to make it equal to any demands likely to be made on a touring car in the way of climbing hills or negotiating bad roads. Modern engineering construction is employed, such, for instance, as pressed steel frames, and throughout the aim has been to make a reliable and practical touring car at a very moderate price.

AUTO JACKS.—Peerless automobile jacks are made by the Oliver Manufacturing Company, 203 S. Desplaines St., Chicago, Ill., in a number of styles to suit the requirements of all automobilists. Having found that there is a demand for a jack without a low bracket, the manufacturers of the Peerless jack are making one in that way, in addition to their other styles. This has exactly the same features as the others—great strength, will not drop, works at any angle, raises by working the handle below the center and lowers by working the handle above the center. The jacks are made for vehicles weighing from two to ten tons and weighs 4 1-2 to 28 pounds, according to capacity.

STEAM SPECIALTIES.—A businesslike, practical pamphlet is that issued by F. W. Ofeldt & Sons, 901 foot of 25th St., Brooklyn, N. Y., who manufacture boilers, burners and other fittings for steam automobiles, making a specialty of kerosene-burning apparatus, in which line they have met with a consid-

erable measure of success. Ofeldt's blue-flame kerosene burner is the result of a great deal of experimental work, and, if properly handled, will give excellent results, it is claimed, the flame being clear blue, smokeless and clean. Ofeldt's water-tube boiler consists of a series of interwoven coils of tubing connected at top and bottom with a central drum. The arrangement of the tubes is such that a large amount of heat is absorbed by them, making the boiler



OFELEDT WATER-TUBE BOILER.

quick steaming and efficient. A great advantage it possesses is that it cannot be "scorched" by allowing the water to evaporate. All Ofeldt boilers are tested to 500 pounds water pressure before being sent out. Ofeldt's automatic fuel regulator is simple in action and has no packing boxes. These specialties are handled by the John Simons Co., 110 Centre St., New York.

HOTEL JEFFERSON.—In the work of preparation for the Louisiana Purchase Exposition the question of hotel accommodation was thoroughly canvassed by the business men of St. Louis, and it was decided to erect a modern fireproof structure in the downtown district that would be the equal of any similar hotel in America. Messrs. Barrett, Wade and Westlake, of St. Louis, made a tour of inspection of the great hotels in the East and on their return plans were drawn for the magnificent house on Twelfth street, St. Charles and Locust streets, which has been opened during the Fair. The hotel is without qualification a monument to the skill and taste of its designers and builders, and it is conducted in a way that shows exceptional ability on the part of the management. The decorations and furnishings are really beautiful. The rotunda is in Louis XVI. style, all the furniture is mahogany, and the carpets, tapestries, curtains and linens have all been specially made by the first houses at home and abroad. There are 300 bathrooms, equipped with porcelain fittings, in the house and a delightful selection of single rooms and suites. The management of the hotel is undertaken by Lyman T. Hay, who has had a wide experience and is known to a very considerable number of the traveling public. The responsible position of chief clerk is most excellently filled by Dwight M. Fortner, formerly of Little Rock, Ark. Guests at a hotel are largely dependent upon the good offices of the chief clerk for their comfort, and Mr. Fortner made a fine reputation among automobilists in this respect by the way in which he received the tired and dusty tourists of the famous Tour to St. Louis on their arrival at the headquarters in the Hotel Jefferson.

LUBRICATING OILS.—The Auto Oil Co., of Franklin, Pa., located in the center of what is claimed to be the district producing the best grade of crude oil in the world, is manufacturing lubricating oils for automobile use which are said to be of the very highest quality, owing to the excellence of the raw material. The superior lubricating qualities of the Auto Oil Co.'s

products are said to more than offset the slightly higher price over ordinary oils.

DUST SHIELD.—The Acme Motor Car and Repair Co., Cleveland, O., manufactures a dust shield which is exceedingly simple in construction and application, durable and effective in operation. The shield itself is made of light craventie cloth, and is carried backward at an angle of about 45 de-

grees on brass supports which are attached to the top edge of the rear seats of the tonneau. When not in use the shield rolls up under a brass shield, so that it does not interfere with getting in and out of the tonneau. The theory of this device is that the air, passing over the top of the shield, meets and throws down the dust which is trying to rise behind it.

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